



Calhoun: The NPS Institutional Archive
DSpace Repository

Theses and Dissertations

1. Thesis and Dissertation Collection, all items

2008-12

Defense spending in Latin America: arms race or commodity boom?

Horning, Jason R.

Monterey California. Naval Postgraduate School

<http://hdl.handle.net/10945/10289>

Downloaded from NPS Archive: Calhoun



Calhoun is the Naval Postgraduate School's public access digital repository for research materials and institutional publications created by the NPS community. Calhoun is named for Professor of Mathematics Guy K. Calhoun, NPS's first appointed -- and published -- scholarly author.

Dudley Knox Library / Naval Postgraduate School
411 Dyer Road / 1 University Circle
Monterey, California USA 93943

<http://www.nps.edu/library>



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**DEFENSE SPENDING IN LATIN AMERICA:
ARMS RACE OR COMMODITY BOOM?**

by

Jason R. Horning

December 2008

Thesis Advisors:

Harold Trinkunas
Robert Looney

Approved for public release; distribution is unlimited

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE December 2008	3. REPORT TYPE AND DATES COVERED Master's Thesis	
4. TITLE AND SUBTITLE Defense Spending in Latin America: Arms Race or Commodity Boom?			5. FUNDING NUMBERS	
6. AUTHOR(S) Jason R. Horning				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.			12b. DISTRIBUTION CODE	
13. ABSTRACT (maximum 200 words) <p>Both Venezuela and Chile have increased their defense spending since 2003. This thesis seeks to answer the following question: Is the commodities boom in South America responsible for the region's increased defense spending? First, it must be determined whether the increase in defense spending is due to an existing arms race, the historically high revenues of a commodity boom, or if it is simply a military modernization effort. What are the possible reactions of neighboring countries? Further, can game theory be used to provide predictions for regional conflict in South America?</p> <p>Despite the specter of an arms race in the region, this thesis explains that the increased defense spending in both Chile and Venezuela relates more to the 2003–2008 commodity boom than a competitive arms build-up in the region. The 2003–2008 commodity boom and resulting availability of resources, combined with the need to upgrade decades-old, dilapidated military hardware have resulted in a flurry of military hardware purchases throughout the region. Additionally, this thesis will provide predictions from game theory literature for regional conflict in South America as other countries in the region have experienced the same benefits of the 2003–2008 commodity boom, and thus have increased defense spending. Using a reciprocating strategy from Robert Axelrod's groundbreaking work, <i>Theory of Evolution</i>. An analysis of the strategy called TIT for TAT shows that cooperation between South American countries is more likely when used assuming indefinite future relations.</p>				
14. SUBJECT TERMS Chile Venezuela Arms Defense Spending Commodity Military			15. NUMBER OF PAGES 85	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UU	

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

**DEFENSE SPENDING IN LATIN AMERICA:
ARMS RACE OR COMMODITY BOOM?**

Jason R. Horning
Lieutenant, United States Navy
B.S., Old Dominion University, 2003

Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
(WESTERN HEMISPHERE)**

from the

**NAVAL POSTGRADUATE SCHOOL
December 2008**

Author: Jason R. Horning

Approved by: Harold Trinkunas
Thesis Advisor

Robert Looney
Thesis Advisor

Harold Trinkunas PhD
Chairman, Department of National Security Affairs

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

Both Venezuela and Chile have increased their defense spending since 2003. This thesis seeks to answer the following question: Is the commodities boom in South America responsible for the region's increased defense spending? First, it must be determined whether the increase in defense spending is due to an existing arms race, the historically high revenues of a commodity boom, or if it is simply a military modernization effort. What are the possible reactions of neighboring countries? Further, can game theory be used to provide predictions for regional conflict in South America?

Despite the specter of an arms race in the region, this thesis explains that the increased defense spending in both Chile and Venezuela relates more to the 2003–2008 commodity boom than a competitive arms build-up in the region. The 2003–2008 commodity boom and resulting availability of resources, combined with the need to upgrade decades-old, dilapidated military hardware have resulted in a flurry of military hardware purchases throughout the region. Additionally, this thesis will provide predictions from game theory literature for regional conflict in South America as other countries in the region have experienced the same benefits of the 2003–2008 commodity boom, and thus have increased defense spending. Using a reciprocating strategy from Robert Axelrod's groundbreaking work, *Theory of Evolution*. An analysis of the strategy called TIT for TAT shows that cooperation between South American countries is more likely when used assuming indefinite future relations.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	POSSIBLE EXPLANATIONS FOR CHILE AND VENEZUELA’S DEFENSE SPENDING	2
B.	THESIS FINDINGS	8
C.	METHODOLOGY AND SOURCES.....	10
II.	CHILE.....	11
A.	CIVIL-MILITARY RELATIONS	11
B.	DEFENSE SPENDING	14
C.	WHY INCREASED CHILEAN DEFENSE SPENDING?	15
D.	ARMS RACE	15
E.	COMMODITIES BOOM.....	17
F.	MODERNIZATION	18
G.	TYPES OF DEFENSE SPENDING	20
H.	CONCLUSION	21
III.	VENEZUELA.....	23
A.	THE CHÁVEZ ERA.....	23
1.	Venezuela’s New Constitution	25
2.	The Constitution and Economic Policies	26
3.	Populist Initiatives	27
4.	Oil Production	28
5.	Government Spending.....	32
6.	Inflation Rates	35
7.	Tax Policies.....	37
8.	Central Bank Reforms.....	38
9.	Civil Military Relations	39
10.	Economic Policies and Economic Stability	40
B.	DEFENSE SPENDING	41
C.	REASONS FOR THE INCREASED VENEZUELAN DEFENSE SPENDING?.....	43
1.	Arms Race.....	43
2.	Commodities Boom.....	44
3.	Modernization	45
D.	CONCLUSION	46
IV.	AVOIDING REGIONAL CONFLICT.....	49
A.	PREDICTIONS FROM GAME THEORY LITERATURE FOR REGIONAL CONFLICT IN SOUTH AMERICA.....	50
1.	Theory Overview.....	52
2.	Rules of the Game	53
3.	Defining Success.....	54
a.	<i>TIT FOR TAT’s Qualities.....</i>	<i>55</i>
4.	Impact of Chile and Venezuela’s Expanded Roles in the Region..	57

5.	Policy Strategy	58
6.	Ideal, Yet Not Perfect	60
B.	CONCLUSION	60
V.	CONCLUSION	63
	LIST OF REFERENCES.....	65
	INITIAL DISTRIBUTION LIST	69

LIST OF FIGURES

Figure 1.	SIPRI Defense Spending Data for Chile (2005 US\$).....	14
Figure 2.	Copper Price/lb 2003-2008	17
Figure 3.	Venezuelan Oil Exports	31
Figure 4.	Monthly Inflation Rate, Consumer Prices (January 1991- June 2007).....	36
Figure 5.	International Reserves of Venezuela and Oil Prices.....	37
Figure 6.	SIPRI Defense Spending Data for Venezuela (2005 US\$) and Oil Prices (2007 US\$).....	42
Figure 7.	Crude Oil Prices.....	44

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

Table 1.	Venezuela Central Government Social Spending.....	33
----------	---	----

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

I would like to thank Professor Harold Trinkunas and Professor Robert Looney for their hard work and support. There is no doubt that the quality of my thesis is a direct reflection of their professionalism and expertise. I would never have made it to graduate school, nor had the discipline and drive to finish a thesis without a long list of fantastic mentors during my previous tours of duty; I am indebted to Rear Admiral Robert Reilly, Jr., Captains Fred McKenna, Robert Barwis and William Ramsey, and my close personal friend Lieutenant Commander Michael Esparza. Most importantly, I must acknowledge the unwavering love and support of my wife and children. I could not have completed this project without them. Dannielle, Jason Jr., and Jordan, thank you for enduring yet another cross-country move to support my career. Thank you for your patience, love and sacrifice. I love you very much.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

Defense spending around the world has increased since 2003 and the situation in South America is no different.¹ Many South American countries have increased their defense budgets in recent years, but two countries, in particular, stand out. Chile and Venezuela are rapidly expanding their military capabilities. Chile recently purchased ten F-16 fighter planes, eight frigate war ships, two submarines and 118 Leopard IIA tanks.² Venezuela recently purchased dozens of Russian fighter jets and attack helicopters, as well as 100,000 Kalashnikov rifles.³ Due to historically high copper and oil prices, their budgets are flush with additional pesos and bolivars to finance the increased defense spending. Although neither country has been involved in a major military conflict in decades, both Chile and Venezuela continue to buy advanced, highly capable military hardware. “Latin Americans for the most part do not fear aggression from their neighbors... they do not expect to go to war with one another.”⁴ With few internal and external threats, experts question the reasoning behind the buildup.⁵

Three possible theories can explain Chile and Venezuela’s military expansion. The first emphasizes the existing arms race in Latin America and argues that Chile and Venezuela are just keeping pace with other military powers in the region such as Brazil and Colombia. A second theory links the additional spending to the explosive increase in copper and oil prices due to the 2003–2008 commodities boom. The Chilean military gets a guaranteed percentage of the profits from copper exports. The Venezuelan military does not have direct access to oil revenues for equipment purchases. However, with oil prices at all-time highs from 2003 to 2008, they do benefit from increased budgets. In addition,

¹ Stockholm International Peace Research Institute. *The SIPRI Military Expenditure Database*. 2008.

² Alex Sanchez, "Chile's Aggressive Military Arms Purchases are Ruffling the Region, Alarming in Particular Bolivia, Peru and Argentina." *COHA.org*. Aug 7, 2007. www.coha.org (accessed May 15, 2008).

³ Simon Romero, "Venezuela Spending on Arms Soars to World's Top Ranks." *New York Times*, Feb 25, 2007: 1-3.

⁴ Jorge I. Dominguez, *Boundary Disputes in Latin America*. Institutional Report, Washington DC: United States Institute of Peace, 2003.

⁵ Wendy Hunter’s *State and Soldier in Latin America*, examines efforts to identify and assign missions to the armed forces in Latin America in the Post Cold War era.

Venezuelan President Hugo Chávez's anti-United States rhetoric justifies additional spending, with Chávez claiming that the United States is planning an attack. In doing so, he is making the connection between threat levels and defense spending, and using high oil prices to fund the buildup. A third theory points to the need for military modernization after years of being denied access to high-tech equipment; this modernization is said to be necessary for the militaries to provide the basic protections for each country.

Whatever the reasons behind the military buildup, the fear among U.S. policy makers, and the international community generally, is how other countries in the region perceive and react to the buildup. Some fear that, with Chile and Venezuela's increased military power, its neighbors will be pressured into keeping pace. Exploring the consequences of their increased defense spending is as important as understanding the causes. Other countries in South America have benefited from the commodities boom as well and have made additional military expenditures. Considered one of the most peaceful regions in the world in terms of conventional inter-state warfare, it begs the question: Why, in South America, would countries without a viable external threat make the decision to spend money on the military, especially when it could be spent on social and economic programs? Are South American countries reacting to the military capabilities buildup in Chile and Venezuela, effectively entering an arms race? This thesis intends to answer the question of why both Chile and Venezuela have increased their defense spending since 2003. Is the commodity boom in South America responsible for the region's increased defense spending and what are the possible reactions of neighboring countries? Using predictions from game theory literature, policy recommendations will be provided for avoiding regional conflict in South America.

A. POSSIBLE EXPLANATIONS FOR CHILE AND VENEZUELA'S DEFENSE SPENDING

The literature related to defense spending in Latin America analyzes various periods from the 1970s through the 1990s, but few studies focus on the latest commodities boom, which began in 2003 and has continued to 2008. Chile and Venezuela, along with several other South American countries, benefit from the high

prices of commodities such as copper, oil, gold, natural gas, and agricultural products. Three different theories are used here to explain the recent increase in defense spending in Latin America. The first explains that Chile and Venezuela are already competing in a regional arms race. The second argues that, due to the increase in copper and oil revenues, both countries simply have more money to dedicate to defense spending. The third states that both Chile and Venezuela have old, outdated military equipment that is in desperate need of upgrading.

An arms race can be complex and difficult to define, especially during the post-cold war era in South America. An arms race is not simply a competitive buildup of militaries between countries, but is based on several underlying factors that are key to a regional arms race. While several countries continue to expand their military capabilities, overall, South America is a multi-polar region. However, not all of the powers are equal. Kenneth Waltz's expectation that "both friends and foes will react as countries always have to threatened or real predominance of one among them: they will work to right the balance."⁶ When countries are engaged in increased defense spending, the balance of power in the region must be analyzed to determine whether an arms race exists in the region.

The concept of balance of power has a core meaning, "That hegemonies do not form in multistate systems because perceived threats of hegemony over the system generate balancing behavior by other leading states in the system."⁷ Therefore, the increased defense spending in South America could be attributed the effort to keep power balanced within the region. The balance of power theory could hold true regionally within South America. However, although widely accepted, Waltz's balance of power theory does not hold true today in a worldwide sense. Despite Russia and China attempting to assert themselves as world powers, there has not been widespread balancing behavior against United States hegemony multi-state system. Waltz admits

⁶ Kenneth Waltz, "Globalization and American Power." *The National Interest*, 2000: 55-56.

⁷ William C. Wohlforth, et al. "Testing the Balance-of Power Theory in World History." *European Journal of International Relations*, 2007: 155-185

that “the present condition of international politics is unnatural.”⁸ Therefore, other scholars have tested the balance of power theory.

William C. Wohlforth and others test the balance of power theory in their work, *Testing Balance-of-Power Theory in world History*.⁹ Wohlforth shows that hegemonies routinely form throughout history, and that balancing is an insignificant factor when explaining the emergence of non-hegemonic outcomes.¹⁰ Particularly important in South America, Wohlforth’s analysis provides a counter point to the theory of an arms race in an effort to balance power in the region. Despite the potential for an arms race, other possible factors can be used to explain the build-up of arms in Chile and Venezuela.

Benjamin Goldsmith analyzes the general relationship of increased wealth as well as domestic and interstate factors on defense spending. He “tests an extensive set of defense-burden data to determine the general factors that influences states’ levels of military spending”¹¹ in his article “Bearing the Defense Burden, 1886-1989.” Goldsmith defines defense burden as:

a proportional measure of military expenditure based on national product. This measure facilitates comparison across states and over time. It is not affected by the currency used or by general rates of inflation. I choose to focus on the defense burden because it measures spending levels and allows meaningful cross national comparisons.¹²

This definition is applicable to the defense spending in Chile and Venezuela, and provides a consistent and fair comparison when examining cross-country data in determining the extent of the arms race in South America. After analyzing a wide range of studies, Goldsmith found that increasing state wealth and economic growth positively

⁸ Kenneth Waltz, "Globalization and American Power." *The National Interest*, 2000: 56.

⁹ William C. Wohlforth, et al. "Testing the Balance-of Power Theory in World History." *European Journal of International Relations*, 2007: 155-185.

¹⁰ Ibid., 156.

¹¹ Benjamin Goldsmith E., "Bearing the Defense Burden, 1886-1989. Why Spend More." *Journal of Conflict Resolution*, 2003: 553.

¹² Ibid.

correlate with an increase in defense spending.¹³ He admits more work must be done, but suggests the explanation behind the results may be that “with greater resources per capita a state can meet the basic social welfare needs of the population and still have a larger proportion of income left over for defense.”¹⁴ Additionally, he suggests with good economic growth, “As was true with the effect of wealth, it appears here that states will try to buy more security when they can afford it.”¹⁵ Goldsmith also found a positive correlation between war and defense burden. Although there have not been any wars in South America during the period examined, this variable can be considered. When controlling for war, he found that enduring rivalry, although less robust than wealth and growth, is a significant factor.¹⁶ This will be an important factor when analyzing Venezuela. In Chávez’s view, Venezuela has several rivals, including the United States and Colombia, which could be a reason for Venezuela’s increased defense spending and possibly the basis for a regional arms race.

Looney and Frederiksen expand the discussion on determinants of defense spending by looking at fifteen countries in Latin America. They found three major underlying reasons for defense spending: military influence, domestic resources and regional or internal conflicts.¹⁷ Their model identified changes in defense budgets as either reactions to short-term shocks or attempts by individual governments to reestablish a long-run balance between defense spending and some measure of economic activity, military influence, or regional military activity.¹⁸ Chile and Venezuela span the course of each of the categories, suggesting that their recent increased defense spending may be affected by more than one factor.

¹³ Benjamin Goldsmith E., "Bearing the Defense Burden, 1886-1989. Why Spend More." *Journal of Conflict Resolution*, 2003: 553.

¹⁴ Ibid., 562.

¹⁵ Ibid.

¹⁶ Ibid., 566.

¹⁷ Robert E Looney and Peter C. Frederiksen. "The Effect of Declining Military Influence on Defense Budgets in Latin America." *Armed Forces and Society*, 2000: 446.

¹⁸ Ibid., 447.

Recently, the mainstream media have highlighted the issue of arms buildup and increased defense spending in South America and raised the specter of an arms race. Many of the media outlets that have focused on Chile and Venezuela use a wide range of applicable data and first-hand interviews with experts inside and outside of the region. Andrew Downie, a correspondent for the *Christian Science Monitor*, recently interviewed Michael Shifter, the Vice President of Policy at the Inter-American Dialogue in Washington, who testified before Congress about Venezuela's increased defense spending. Shifter argues that the motivations for increased defense spending differ across countries. Stating, "Chávez is using this as part of mobilizing the country and thinking of a possible attack from the U.S. In Chile, it is much more about giving the armed forces what they want."¹⁹

Another highly discussed topic in the media is Venezuela's populist president Hugo Chávez. His military background, fiery rhetoric and constant concern for a U.S. invasion are additional factors that must be considered when attempting to explain Venezuela's increased defense spending. Throughout his presidency, Chávez has made claims that the United States is a military threat to Venezuela. In June of 2006, Venezuela prepared for and conducted training exercises designed to thwart a U.S. invasion. Venezuela's military began training exercises called "Operation Integral Defense Patriot Navy," which involved commercial fishermen and other civilians to aid the Navy in defending the coast.²⁰ Planning to defend Venezuela against the most advanced military in the world could be reason enough to justify purchasing additional high-tech military weapons.

Advanced weapons only recently became available to countries in South America. The United States is among the leading arms providers to South America.²¹ However, the

¹⁹ Andrew Downie, "Is Latin America Heading for an Arms Race?" *Christian Science Monitor*. Jan 16, 2008. www.csmonitor.com (accessed May 15, 2008).

²⁰ Clara Long, "Venezuela Spends Week Preparing for U.S. Invasion." *NPR.ORG*. 2006, June 11.

²¹ Andrew Downie, "Is Latin America Heading for and Arms Race?" *Christian Science Monitor*. Jan 16, 2008. www.csmonitor.com (accessed May 15, 2008).

policy toward transferring advanced arms to Latin America only became more liberalized until 1997 with the repeal of President Carter's Presidential Directive 13, which severely limited arms sales to Latin America.

Chile and Venezuela both claim to be modernizing and replacing old, outdated equipment. "Chilean authorities insist that the newly purchased warplanes, tanks, frigates and submarines were merely replacements for obsolete material."²² The outdated equipment can be contributed to President Jimmy Carter's Presidential Decision Directive 13, banning sales of U.S. attack jets and other high-tech items. "Other jet suppliers such as France and Sweden followed the U.S. lead and refrained from selling the most sophisticated equipment during the same time period."²³ "As a result, Latin America now has one of the world's lowest levels of military technology."²⁴

In an *Airpower Journal* article, Dr. Frank Mora and Lt. Col. Antonio Palá discuss the new policy and some of its effects on the region. Mora and Palá argue that a measured approach to arms sales can be beneficial to peace and security in the region.²⁵ "Rather than tilting civil-military relations in favor of the armed forces, as most critics maintain, arms sales can be an element of a more stable relationship that can contribute to democratization."²⁶

A potentially destabilizing force, however, is the purchase of arms by Venezuela from Russia. In May 2007, "Venezuela was re-certified as "not cooperating fully" with U.S. antiterrorism efforts under Section 40A of the Arms Export and Control Act."²⁷ As a result, the U.S. banned sales and licensing for the export of defense articles and services

²² Alex Sanchez, "Chile's Aggressive Military Arms Purchases are Ruffling the Region, Alarming in Particular Bolivia, Peru and Argentina." *COHA.org*. Aug 7, 2007. www.coha.org (accessed May 15, 2008).

²³ Thomas Cardamone, "Arms Sales to Latin America." *Foreign Policy in Focus*, 1997: 1-3. (Cardamone 1997)

²⁴ Ibid.

²⁵ Frank O. Mora and Antonio L. Palá. "U.S. Arms Transfer Policy for Latin America. Lifting the Ban on Fighter Aircraft." *Air Power Journal*, 1999:Pg 90. (Mora and Palá 1999)

²⁶ Ibid., 91.

²⁷ U.S. Department of State. *Country Reports on Terrorism*. State Department, Washington DC: Office of the Coordinator for Counterterrorism, 2008.

to Venezuela, including the transfer of defense items. With the U.S. ban, Venezuela has looked to Russia to purchase new military equipment including fighter jets, helicopters, rifles and possibly submarines. “In 2005 the U.S. blocked the sale of 12 Spanish military planes to Venezuela that were made with U.S. technology.”²⁸ Now, with Russia as a stable supplier of arms, Venezuela could become a destabilizing force in the region.

The reactions of other countries in the region is as important as understanding the causes of increased defense spending. Will Chile and Venezuela’s military buildup destabilize the region? Axelrod’s *The Evolution of Cooperation* asks the question, “Under what conditions will cooperation emerge in a world of egoists without central authority?”²⁹ Axelrod presents several strategies that can promote cooperation among players in an iterated computer game that can be used in international relations theory. The strategy that prevails in each iteration of the game is called TIT for TAT. It is a strategy that promotes cooperation between players or countries. The basis for the strategy is to cooperate on the first trial and then behave as your opponents did on the previous trial. Axelrod’s findings can be used to predict outcomes of cooperation within the region. Later the conclusion of this thesis will provide a recent example of TIT for TAT in action.

B. THESIS FINDINGS

While some shock and awe media outlets would certainly prefer an arms race raging out of control in South America to explain the explosive increase in Chile and Venezuela’s defense spending, the real reason behind the increase not that shocking. The thought of an arms race stimulate memories of the cold war and the race to build nuclear weapons between the United States and the Soviet Union. No such race either nuclear or conventional is happening in Chile, Venezuela or South America for that matter. The facts presented in this thesis point to a combination of the need for modernization and the revenues from the commodity boom to pay for it.

²⁸ BBC News. *Venezuela 'to buy more weapons'*. Feb 5, 2006.
<http://news.bbc.co.uk/2/hi/americas/4682488.stm> (accessed June 12, 2008).

²⁹ Robert Axelrod, *The Evolution of Cooperation*. New York: Basic Books, 2006.

In Chile, the military is required to purchase new equipment from copper revenues. Chile's copper law provides for a direct correlation between increased copper prices and increased defense spending. Additionally, Chile displayed a need for new and updated equipment. Together Chile's overdue need for modern military equipment, high copper prices, relaxed U.S. policies Chile embarked on a massive military modernization effort and increased defense spending.

The Venezuelan military benefits from the high price of oil and the belief that the U.S. could invade. Venezuela's president continues to make the argument that the United States is a threat and the Venezuelan military needs to modernize to defend against that threat. Additionally, the Venezuelan military suffers from old equipment and is in need for new and updated hardware. As with Chile, Venezuela spent decades in the dark unable to adequately modernize its equipment. The benefit of high oil prices and the willingness of countries like Russia to provide the high tech weapons have allowed Venezuela defense spending spree.

Rather than engage in an arms race many of the leaders in South America are working towards cooperation and collective defense pacts. Venezuela, Chile, Brazil and others are advocating for cooperation and mutual defense and their leaders do not see Chile and Venezuela's increase defense spending as a threat. To continue this cooperation the best policy strategy for countries in the region to avoid conflict is to use a reciprocal strategy from Robert Axelrod's *Theory of Evolution* called TIT for TAT.³⁰ The TIT for TAT strategy has been proven to be robust in promoting cooperation by experts including Parks and Komorita when compared to alternative theories.³¹ TIT for TAT is a viable strategy and can be used to promote cooperation among South American countries despite the increased levels of defense spending.

³⁰ Robert Axelrod, *The Evolution of Cooperation*. New York: Basic Books, 2006

³¹ Craig D Parks and Samuel S Komorita. "Reciprocity Research and Its Implications for the Negotiation Process." *International Negotiation*, 1998: 151-169.

C. METHODOLOGY AND SOURCES

This thesis will use the case study methodology and will cover the time period from 1990 through the present, with a particular focus on the past five year, during the commodity boom 2003-2008. Based primarily on secondary sources, the thesis will include congressional sources from the U.S. Congressional Research Service (CRS) and text from testimonies before Congress. For example, a recent Congressional Research Service (CRS) report notes, “The total value of all arms transfer agreements worldwide (to both developed and developing nations) declined nearly 13 percent from the prior year.”³² The same report also provides a wealth of regional arms transfer data delineated by countries who are the leading buyers and providers of arms to developing nations. The data provided in the report shows historical levels of arms transfers to Latin America and which countries are the top providers of those arms.

Other sources used in this thesis include periodicals, U.S. government and nongovernmental reports, working papers, books, and journals articles pertaining to general defense and military spending in Latin America, focusing on Chile and Venezuela. It will also refer to official reports from governmental offices including the U.S. Department of State, Department of Defense as well as Chilean and Venezuelan government offices. The World Bank, JANE’S, and Stockholm International Peace Research Institute (SIPRI) databases are used to provide empirical evidence.

³² Richard F. Grimmett, *Conventional Arms Transfers to Developing Nations, 1998-2005*. CRS Report, Washington DC: Congressional Research Service-Library of Congress, 2006.

II. CHILE

Since the end of the Pinochet era and the beginning of democracy in Chile, a number of factors are critical to determining the basis for Chile's increased defense spending. Among the most important factors, civil military relations play a key role in determining defense budgets and military equipment procurement. Civilian oversight of the military in Chile is unique since the end of the Pinochet regime and is critical to the analysis of increased defense spending in Chile.

Additionally, civil military relations affect other factors that help to determine why defense spending has increased. These factors include the possibility of Chile competing in a regional arms race, the need for military equipment modernization, additional resources from high copper prices and the specific types of military spending.

Chile's military leaders have remained relatively autonomous since the Pinochet era. While the level of civilian oversight has increased throughout the past decade, policies such as the copper law are still in place and play an important role on defense spending in Chile.

A. CIVIL-MILITARY RELATIONS

The structure of the armed forces and the power within the government is a critical and important factor underlying defense spending. Unlike many South American countries, the Chilean military has a high level of autonomy and power within the national government. This autonomy and power stems from the Pinochet regime, its 1980 constitution, and 1989 reforms. "The 1980 constitution was designed to provide a framework of protected democracy, with limited pluralism and a tutelary role for the armed forces."³³ The military performed the role as a "fourth branch of government –

³³ Claudia Heiss and Patricio Navia. *Protected Democracy and Military Autonomy Trade Offs in Chile's Transition to Democracy*. Working Paper Number 9, Institute of Instruction in Social Sciences, University Diego Portales, 2006.

guardians of the nation.”³⁴ This role and their historically high level of autonomy is the basis for the continued power of the military today.

Upon taking power via a military coup in 1973, Pinochet abolished most of the 1925 constitution and replaced it with military decrees with the intention writing a new constitution. “The objective of the Junta was to restore order and return power to elected civilian authorities.”³⁵ By 1980, the Junta produced a new constitution and put it in place in 1981. “The new constitution granted special powers to the President and the Junta that would serve as the legislative body.”³⁶ The military would maintain power during an eight-year transitional period upon which elections would be held to elect a new president and modify the constitution. During this period, the military was the guarantor of democratic and political order. They did this via controlling appointments to a constitutional tribunal, which ruled upon “whether individuals and political parties represented a threat to the institutions and functioning of democracy as established in the constitution.”³⁷

Additionally, in 1987, Pinochet amended the 1953 copper law. The original law required that 10 percent of all profits from copper sales go to the military. The 1987 provision changed the language of the law from copper profits to copper sales, resulting in a larger amount of funds going to the military. This is particularly important with today’s high copper prices. Additionally, there was no legislative oversight and the funds went directly to the various armed forces in equal amounts to be used for military acquisitions.³⁸

³⁴ Brian Loveman, "Protected Democracies and Military Guardianship: Political Transitions in Latin America, 1978-1993." *Journal of Inter-American Studies and World Affairs*, 1994: 123.

³⁵ Claudia Heiss and Patricio Navia. *Protected Democracy and Military Autonomy Trade Offs in Chile's Transition to Democracy*. Working Paper Number 9, Institute of Instruction in Social Sciences, University Diego Portales, 2006.

³⁶ Ibid.

³⁷ Ibid., 7.

³⁸ Ibid., 20.

When Pinochet failed to be elected in 1988, the opposition was eager to eliminate many of the provisions in the Pinochet constitution, but, with the military still very powerful, made many concessions to military autonomy. One example is that the military budget has a minimum level that was set in 1989. “According to the armed forces LOC (#18,948) promulgated on February 22, 1990, the military budget cannot fall below the previous year’s budget adjusted for inflation.”³⁹ “The constitution also deprived the president of the right to dismiss top military commanders and allowed the armed forces to nominate four of nine non-elected senators.”⁴⁰ Combined with the copper law, these policies gave the military a high level of power and autonomy over defense spending.

It has been eighteen years since the rule of the Junta, and part, but not all, of the aforementioned powers are still in place. As many of the old Pinochet guard retired, some long-held powers and laws have been changing. In 2004, the equal distribution clause of the copper law was modified; now the Defense Ministry decides on how to allocate the revenues of copper resources to each of the services.⁴¹ More importantly, the constitutional revisions of 2005 “abolished the position of appointed senator, and restored the president’s power to fire the commanders-in-chief of the armed forces and the uniformed police.”⁴² Although there have been discussions about changes to the copper law, no serious attempts to change it have been put forward. “Given the law's mandate as well as the present situation of a region in flux, the government has chosen to adopt a theme of continuity for the immediate future”⁴³ — leaving the copper law unlikely to be changed.

³⁹ Claudia Heiss and Patricio Navia. *Protected Democracy and Military Autonomy Trade Offs in Chile's Transition to Democracy*. Working Paper Number 9, Institute of Instruction in Social Sciences, University Diego Portales, 2006. 20.

⁴⁰ Oxford Analytica. *Chile: F-16 Order Exposes Defense Spending Problems*. OxResearch Feb 11, Oxford: Oxford Analytica Ltd., 2002.

⁴¹ Ibid., 24.

⁴² Human Rights Watch. "Human Rights Overview. Chile." *HRW.org*. 2004.

⁴³ Patrice Franko, "De Facto Demilitarization: Budget-driven Downsizing in Latin America." *Journal of InterAmerican Studies and World Affairs*, 1994: 37-57.

B. DEFENSE SPENDING

Chile's defense spending increased by 49.9 percent between 2003 and 2006, shown in Figure 1.⁴⁴ 2006 military expenditures totaled over 4.8 billion dollars (US).⁴⁵ The 2007 actual expenditures are expected to be even higher due to the high copper prices that year. According to the Stockholm International Peace Research Institute (SIPRI), 3.6 percent of the gross domestic product was spent on defense. This is among the highest levels of defense burden in South America.⁴⁶

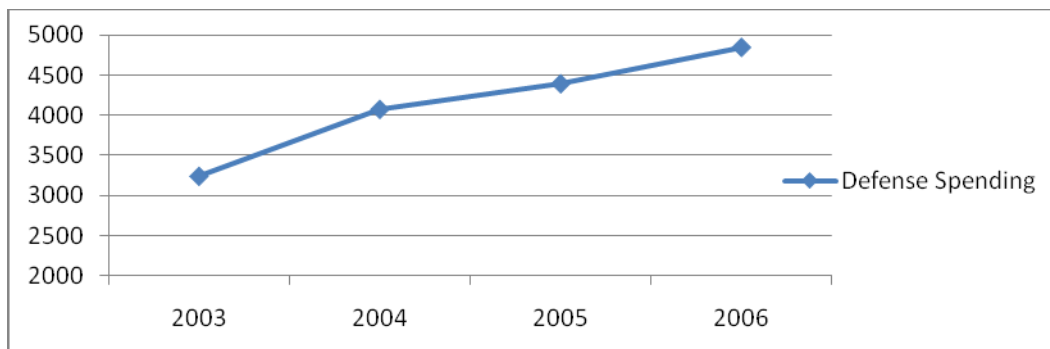


Figure 1. SIPRI Defense Spending Data for Chile (2005 US\$).⁴⁷

“An earlier study concluded that Chile spent more per capita on the military than any other country in Latin America: \$90.88 (US) per inhabitant.”⁴⁸ Based on the current population, that number is much higher. The CIA reports Chile's population at nearly 16.5 million inhabitants and SIPRI reports 2007 defense expenditures at 4.8 billion, which equates to almost \$300 (US) per person spent on defense. As a point of reference, Brazil, with a larger defense budget and much larger population, spends just under 80

⁴⁴ Oxford Analytica. *Latin America: Arms Purchases Rise Along With Growth*. Oxresearch Feb 04, Oxford: Oxform Analytica, 2008.

⁴⁵ Ibid.

⁴⁶ Stockholm International Peace Research Institute. *The SIPRI Military Expenditure Database*. 2008.

⁴⁷ Ibid.

⁴⁸ Study referred to in Rohter, Larry. "Chile Copper Windfall Forces Hard Choices on Spending." *New York Times*, Jan 7, 2007: 1. 3.

dollars per person on defense.⁴⁹ The point here is that Chile has dramatically increased its defense spending since 2003. More telling is defense spending as a percentage of GDP. Chile's budget allocates 3.6 percent of its gross domestic product toward defense and Brazil only 1.5 percent.

C. WHY INCREASED CHILEAN DEFENSE SPENDING?

The empirical data on defense burden shows a definite upward trend in defense spending. Of the three theories analyzed, the first relies on the existence of an arms race in South America and Chile's purchases are keeping in step with other military powers in the region such as Venezuela and Brazil. Chile also benefits the explosive increase in copper prices linking it to the current commodities boom theory. Chile is also in need of military modernization after years of being denied access to high tech equipment; such a modernization is said to be necessary for the military to respond to the threats facing the country.

D. ARMS RACE

Chile has not been involved in a major war since the War of the Pacific, well over one hundred years ago. Chile has, however, been involved in a number of border disputes and smaller conflicts in recent years. Although relations are improving, Chile has had tenuous relations with Peru, Bolivia and Argentina. "Peru and Chile vehemently disagree over their territorial and maritime border, while many Peruvians and Bolivians still hold a grudge over the immense amount of Bolivian territory lost to Chile during the War of the Pacific."⁵⁰ Although most border conflicts have been solved between Chile and Argentina, relations in the past have been volatile, due mostly to border disputes in the southern islands and the southern continental glaciers areas, which could be rich in natural resources. Despite past or current differences, Chile, Peru, Bolivia and Argentina are all poles in a multi polar region.

⁴⁹ Per Capita dollar amounts are expressed in US 2005 dollars based on the data provided by SIPRI and the CIA Fact book.

⁵⁰ Alex Sanchez, "Chile's Aggressive Military Arms Purchases are Ruffling the Region, Alarming in Particular Bolivia, Peru and Argentina." *COHA.org*. Aug 7, 2007. www.coha.org (accessed May 15, 2008).

South America is a multi-polar region, one in which no one country is the hegemony. While South America can presumptively rely on the United States for collective defense of threats external to the region, the United States is less likely to get involved in regional conflicts.⁵¹ Therefore, the United States can be discounted as a regional hegemony in this case. Brazil dominates the region in territory, population and defense expenditure, and has the most capable military. However, "South America is viewed in the context of a continental hegemonic vacuum."⁵² When countries are engaged in an arms race, the balance of power in the region must be analyzed to determine whether an arms race exists. The concept of balance of power has a core meaning, "That hegemonies do not form in multistate systems because perceived threats of hegemony over the system generate balancing behavior by other leading states in the system."⁵³ Using this definition, Chile and other countries in South America would increase their defense capabilities and thus defense spending to achieve balance in the system. Chile, Venezuela, Columbia, Peru, Ecuador, Argentina and Brazil have all increased their defense spending since 2003.⁵⁴ While Chile and Venezuela lead in the largest percentage increase in defense burden, nearly every country in the region has increased its defense spending. Based on the Wohlforth's premise and the evidence presented, South America could be in the throes of a regional arms race. "While it is acknowledged that the external environment has changed in the wake of the Cold War, the contention is that changes in the regional balance have yet to be consolidated."⁵⁵ "Moreover, the military perceives new threats to the regional balance, like the equipment entering the region via counternarcotics assistance, as increasing the need for

⁵¹ This is based on the United States' pre-occupation with wars in Iraq and Afghanistan and would likely promote diplomatic methods to solving disputes between countries within the region.

⁵² Augusto Varas, *Brazil in South America: from indifference to hegemony*. Madrid: Fundación para las Relaciones Internacionales y el Diálogo Exterior, 2008.

⁵³ William C. Wohlforth, et al. "Testing the Balance-of Power Theory in World History." *European Journal of International Relations*, 2007: 155-185.

⁵⁴ Oxford Analytica. *Latin America: Arms Purchases Rise Along With Growth*. Oxresearch Feb 04, Oxford: Oxform Analytica, 2008. 4-5.

⁵⁵ Patrice Franko, "De Facto Demilitarization: Budget-driven Downsizing in Latin America." *Journal of InterAmerican Studies and World Affairs*, 1994: 49.

modernization and acquisition at home.”⁵⁶ Arms race or not, Chile could not have increased to its current level of defense spending without copper.

E. COMMODITIES BOOM

Since 2003, the world price of copper has set all-time records and continues to maintain high price levels amid strong demand from developing nations such as Chile and Venezuela. Copper is Chile’s number one export and generated over 14 billion dollars in revenues in 2007.⁵⁷ Copper revenues are by far Chile’s most important single contributor to the economy. Over 8 percent of GDP comes in the form of copper revenues.⁵⁸ Copper prices have increased dramatically between 2003 and the present. Shown in Figure 2, copper has nearly quadrupled in price. From below one dollar per pound in 2003, it has flirted with four dollars per pound several times in the past few years and has been between two and three dollars per pound through September 2008.⁵⁹



Figure 2. Copper Price/lb 2003-2008.⁶⁰

⁵⁶ Patrice Franko, "De Facto Demilitarization: Budget-driven Downsizing in Latin America." *Journal of InterAmerican Studies and World Affairs*, 1994: 49.

⁵⁷ Calculated based on the copper revenues that went to the armed forces of \$1.4 billion (US) in 2007.

⁵⁸ Calculated using data from the CIA Fact Book.

⁵⁹ MetalPrices.com. *Free web charts*. June 19, 2008.
http://www.metalprices.com/pubcharts/Public/Copper_Price_Charts.asp (accessed June 19, 2008).

⁶⁰ MetalPrices.com. *Free web charts*. June 19, 2008.
http://www.metalprices.com/pubcharts/Public/Copper_Price_Charts.asp (accessed June 19, 2008).

Goldsmith found that state wealth and economic growth positively correlate with increased defense burden.⁶¹ Along with his findings, he suggests the explanation behind the results may be that “with greater resources per capita a state can meet the basic social welfare needs of the population and still have a larger proportion of income left over for defense.”⁶² This is particularly true in Chile due to the Copper Law. Additionally, he suggests, with good economic growth, “As was true with the effect of wealth, it appears here that states will try to buy more security when they can afford it.”⁶³ Not only can Chile afford to increase spending on defense, it must, according to the constitution. The copper law requires that 10 percent of all copper revenues go to the armed forces to be used for military acquisitions.⁶⁴ Therefore, defense spending will continue to increase as long as the price of copper increases.

F. MODERNIZATION

With the extra funds from high-priced copper, the Chilean military is taking the opportunity to get new equipment. In fact, the Chilean military claims the copper funds are necessary to replace and modernize old, outdated equipment. “Chilean authorities insist that the newly purchased warplanes, tanks, frigates and submarines were merely replacements for obsolete material.”⁶⁵ Additionally, Chile is restructuring the way it plans to fight in the future. “Chile is well into a wide-ranging defense modernization program involving equipment procurement for all three services and significant shifts in

⁶¹ Goldsmith, Benjamin E. "Bearing the Defense Burden, 1886-1989. Why Spend More." *Journal of Conflict Resolution*, 2003: 551-573.

⁶² Ibid., 562.

⁶³ Ibid.

⁶⁴ Claudia Heiss and Patricio Navia. *Protected Democracy and Military Autonomy Trade Offs in Chile's Transition to Democracy*. Working Paper Number 9, Institute of Instruction in Social Sciences, University Diego Portales, 2006. 20.

⁶⁵ Alex Sanchez, "Chile's Aggressive Military Arms Purchases are Ruffling the Region, Alarming in Particular Bolivia, Peru and Argentina." *COHA.org*. Aug 7, 2007. www.coha.org (accessed May 15, 2008).

doctrine, organization and training.”⁶⁶ “Its intent is to produce a modern, integrated joint force able to satisfy national priorities and participate in U.N.-sanctioned international operations.”⁶⁷

To achieve this goal, Chile has “downsized its military from 120,000 to 40,000 and it reorganized and created eight brigades, giving priority to mobility and firepower.”⁶⁸ However, while the troop reduction phase of the plan was a success. The second phase of the plan, modernization, is now in progress. Chile and other South American countries were prohibited from purchasing advanced weapons from the United States and many of its allies. South American countries’ defense spending dropped by an average of 35.2 percent between 1985 and 1990 and, in Chile, the drop was even more dramatic.⁶⁹ While Chile did make some equipment purchases, it was forced to acquire an ill-assorted collection of military hardware until the Carter era Presidential Decision Directive 13, banning sales of U.S. attack jets and other high-tech items, was repealed by President Clinton in 1997.⁷⁰ Additionally, poor coordination between the services in the past resulted in “conflicting purchasing policies”⁷¹ including reduced efficiency and less capability per dollar spent.

Experts say, “Both the Chilean Air Force and Navy urgently require new hardware.”⁷² Prior to lifting the ban, their fighter jet fleet and three frigate warships were

⁶⁶ Jim Dorschner, "Chile Modernizes for Joint and International Operations." *Proceedings*, March 2005: 64-65.

⁶⁷ Ibid.

⁶⁸ Raúl Zibechi, *South America's New Militarism*. Web Report, Americas Program of the International Relations Center, 2005.

⁶⁹ Oxford Analytica. *Latin America: Arms Purchases Rise Along With Growth*. Oxresearch Feb 04, Oxford: Oxform Analytica, 2008. 7.

⁷⁰ Oxford Analytica. *Chile: Military Modernization*. Oxresearch Mar 11, Oxford : Oxford Analytica, 1998. 1.

⁷¹ Ibid., 2

⁷² Oxford Analytica. *Chile: F-16 Order Exposes Defense Spending Problems*. OxResearch Feb 11, Oxford: Oxford Analytica Ltd., 2002.

going out of service and becoming obsolete.⁷³ To support new fighter aircraft, Chile has only one B-707 tanker for refueling and is in desperate need for more.⁷⁴ Also, the Air Force lacked a combat search and rescue platform — and only 25 percent of its UH-1H helicopter fleet is operational at any one time.⁷⁵ The army and navy are both in similar shape. After dramatically reducing its size, the army is shedding antique equipment for newer models that will support a more lethal and agile force.⁷⁶ The navy's submarine force is operating with 1980s-built submarines that have reached the end of their lifespan, and operating surface ships that it can no longer logistically support.⁷⁷

G. TYPES OF DEFENSE SPENDING

The Chilean armed forces have made significant progress in its modernization goals since the lifting of the high-tech weapons ban. Each of the armed services have either purchased or plan to purchase new fighter jets, tankers, combat helicopters, search and rescue planes, early warning systems, warships (both surface and submarines and associated weapons systems), maritime helicopters, tanks, multiple rocket systems, armored personnel carriers, and a fleet of new trucks including heavy equipment transporters.⁷⁸ Other equipment purchases or upgrades could come as necessary.

Chile has a relatively transparent defense budget process. The Ministry of Defense has published the *Book of National Defense of Chile* on an unclassified level for both internal and external groups to view and analyze. Although Chile's defense expenditures have included a wide range of new and updated equipment, most of its annual budget goes to personnel. In the Chilean defense budget, over 50 percent goes to

⁷³ Oxford Analytica. *Chile: F-16 Order Exposes Defense Spending Problems*. OxResearch Feb 11, Oxford: Oxford Analytica Ltd., 2002

⁷⁴ Ibid.

⁷⁵ Ibid.

⁷⁶ Ibid.

⁷⁷ Ibid.

⁷⁸ Ibid.

personnel and 40 percent of that goes to pay pensions.⁷⁹ Other than to personnel, the rest of the budgetary pie goes to ordnance (22.81 percent), operation (20.89 percent), and infrastructure (2.67 percent).⁸⁰ In general, for 2002, the Chilean Armed Forces were operating equipment that was in the final stages of its useful life, so they have a comparatively high maintenance cost.⁸¹ With a high level of transparency, other countries in the region can know the general levels of defense spending and overall national defense policy. Like in Chile, Venezuela benefited from high commodity prices, but the factors surrounding Venezuela tell a different story.

H. CONCLUSION

The Chilean military increased its defense spending dramatically from 2003 to 2008. While some experts are concerned about a regional arms race, this is not the Chilean rationale for the increased spending. Despite the lack of potential threats, the Chilean had been concerned about the state of its military hardware. Chile's military has suffered from the inability to upgrade, repair and replace its old and outdated military hardware. The President Carter-era ban on arms sales to the region left Chile to make do with second-hand, broken-down equipment. With the repeal of the ban in 1997, Chile almost immediately began the procurement process. It was not, however, until the price of copper began its climb in 2003 that the Chilean military began seriously ramping up its defense spending.

Additionally, the copper law required the military to procure new equipment with the addition of copper revenues. With the combination of the need to modernize its forces and the availability of resources to fund the purchases, the Chilean military was able to go on a spending spree. The reason for the dramatic increase in defense spending lies with the fact that much of Chile's military equipment was out of commission and in

⁷⁹ Chilean Ministry of Defense. *Book of the National defense of Chile*. Chilean Ministry of Defense, 2002.

⁸⁰ Ibid.

⁸¹ Ibid.

desperate need of modernizing. With the tripling of copper prices during the commodity boom Chile was able to replace much of its equipment the same way industrialized nations do each year.

III. VENEZUELA

Like the Pinochet regime's significant impact on the Chilean military, another former military member-turned-president is dramatically impacting all aspects of his country, its politics and therefore its military. President Hugo Chávez has been a polarizing force in Venezuela and has changed the state of affairs in his country since his landslide election in 1998.

Since his accession into office, there have been a number of radical changes made to the government, including a new constitution, civil military relations, economic policies and other populist initiatives. These changes must be considered when analyzing the three theories for increased defense spending. A country in flux, Venezuela is inserting itself as a leader in the region. Venezuela is not in the midst of an arms race in South America, and Venezuela's purchases are keeping in step with other military powers in the region such as Chile and Brazil. However, a more likely theory links the additional spending to the explosive increase in oil prices due to the current commodity boom. President Chávez's policies have benefited from all-time high oil prices and he has been able to support many of his populist initiatives with oil revenues. A third theory points to the need for military modernization after years of being denied access to high-tech equipment. Such modernization is said to be necessary for the military to respond to the threats facing the country.

A. THE CHÁVEZ ERA

The reign of the Chávez government has introduced a number of radical changes not only in the constitution of Venezuela but also in the way of life of Venezuelan politics. The changes that have been introduced since Chávez took office create an impression of criticism and doubt in terms of the future direction of the country as a friend or foe in the region.

Looney and Frederiksen's work is particularly useful in Venezuela. They found three major underlying reasons for defense spending: military influence, domestic

resources and regional or internal conflicts.⁸² Their model identified changes in defense budgets as either: reactions to short-term shocks or attempts by individual governments to reestablish a long run balance between defense spending and some measure of economic activity, military influence, or regional military activity.⁸³ Therefore, before delving into the details of Venezuela's defense spending, it is important to understand the dynamic factors that have forced the changes — both present and future — brought to Venezuela by Hugo Chávez. These include changes to the Venezuelan constitution and also the potential for additional constitutional reforms that Chávez is likely to continue to advance. Additionally, major economic issues of the country — such as oil production, rate of government spending, taxes, inflation rates, central bank reforms, state-owned enterprises, and other reforms — will affect the economic stability of the country.

The cost of increasing levels of defense can be high enough to keep the most advanced weapons out of the reach of many countries around the world. The delicate balancing act of ensuring the basic functions of government and the security of the nation can be difficult to manage. Hugo Chávez is engaged in an economic balancing act of his own. On one hand, Chávez has promised to spread Venezuela's oil wealth to the masses, protect his country from a possible invasion, and increase social programs, all while keeping inflation low. On the other hand, this comes at the expense of further development of the country's natural resources. This is a difficult task for any nation, especially one heavily reliant upon the volatile price oil.

Chávez's changes have not come without criticisms. The government has been cutting the PDVSA development and sustainment budget and diverting those funds to social programs directed for the masses. Scholars argue that such a move on the end of the Chávez administration would eventually take a toll in terms of its oil production competitiveness and eventually cause instability in oil production and oil prices ultimately impacting Venezuelans and the international market. As such, it is with this

⁸² Robert E Looney and Peter C. Frederiksen. "The Effect of Declining Military Influence on Defense Budgets in Latin America." *Armed Forces and Society*, 2000: 446.

⁸³ Ibid., 447.

respect that the populist stance of President Chávez is viewed as something that could significantly affect not only Venezuela's economic growth but also that of its neighboring countries as well.

1. Venezuela's New Constitution

Due to its growing instability, the Venezuelan democracy has been highly criticized. The people viewed political parties as the main determinants of the failure of the former political system, hence the introduction of a new government that puts emphasis on strengthening citizen's rights and civil societies⁸⁴. The triumph of the former coup leader, Chávez, who received approval from 56 percent of the total voter population, could be attributed to the Venezuelans' disillusionment over various politicians who have squandered the country's oil wealth with inefficient governance and corruption. As such, the cornerstone of Chávez' success was criticizing the dominant elite class and the poor management of Petroleos de Venezuela (PDVSA).⁸⁵

When Chávez took office, he had dramatically altered the Venezuelan Constitution and even introduced a new name for the country — the Bolivarian Republic of Venezuela. As such, the new government revamped political institutions by removing the Senate and erecting a unicameral National Assembly, which lengthens the term of the president from five to six years.⁸⁶

President Chávez, however, did not merely stop on a dramatic paradigm shift of the entire Venezuelan government and politics. He also attempted to address other constitutional reforms that he perceived as relevant for the current state of affairs of the society and the economy. On August 15, 2007, the president proposed reforms for the 1999 Constitution, which aimed to change the way in which the marginalized are treated. He wanted the Venezuelan constitution to provide quicker help for the poor.

⁸⁴ Damarys Canache and Michael Kulisheck. 1998. *Reinventing Legitimacy: Democracy and Political Change in Venezuela*. Westport, CT: Greenwood Press.

⁸⁵ Mark P Sullivan and Olhero Nelson. *Venezuela: Political Conditions and U.S. Policy*. CRS Report for Congress, Congressional Research Service, 2007.

⁸⁶ Ibid.

Additionally, the President aimed to widen citizen participation in the democratic process; hence, the so-called "Socialism for the 21st Century." This type of government framework looks into the relevance of "participatory democracy, mixed economy, meeting the country's social needs and promoting a multi-polar world."⁸⁷

The constitutional reform brought a number of significant changes including the president's length of service, more respect to voter preferences in terms of selecting their president, economic reforms, central bank reforms, political-territorial reforms, and military reforms.⁸⁸ Additionally, President Chávez is looking forward to the nationalization of the energy sector and the reduction of the common workday to six hours.⁸⁹

2. The Constitution and Economic Policies

The economic reforms in the country focused more on the diversification of business enterprises and social welfare. The Venezuelan constitution allows citizens to participate freely in any economic activity; closely related to this, the government is also geared toward the promotion of private enterprises that will assure the fair distribution of wealth throughout society.⁹⁰

The foundation of the government's economic reform is centered on the integral development of the country and an economic system that is highly focused on diversification and independence. The relevance of "human values of cooperation" and promotion of "general interest" is highly regarded. In this respect, President Chávez is looking forward to an economy that is healthy with private enterprises, social orientation, cooperation and community centricity.

⁸⁷ Embassy of the Bolivarian Republic of Venezuela. 2007. *Constitutional Reforms in Venezuela*. <http://www.embavenez-us.org> (accessed 3 December 2007).)

⁸⁸ Ibid..

⁸⁹ Mark P. Sullivan and Olhero Nelson. *Venezuela: Political Conditions and U.S. Policy*. CRS Report for Congress, Congressional Research Service, 2007.

⁹⁰ Embassy of the Bolivarian Republic of Venezuela. 2007. *Constitutional Reforms in Venezuela*. <http://www.embavenez-us.org> (accessed 3 December 2007).

Article 113 of the constitution prohibits economic monopolies and the concentration of power and resources to small groups. It drives the government to effectively protect the society and other community-based activities, and would allow the aforementioned to make use of the country's economic resources for the sake of the greater good. On the other hand, private corporations are also allowed to maximize the use of Venezuela's natural resources, although they are required to operate in conjunction with the government's policies and laws and other government enterprises. In relation to this, Article 115 focuses on the relevance of private property for the welfare of the public. Such a reform centers on the notion of the basic right of every citizen to own private properties in correlation to certain qualifications determined by the government.⁹¹

According to Embassy of the Bolivarian Republic of Venezuela, in certain cases wherein a property is:

(1) Public, that is fully owned and managed by the government; (2) Social, that is lands which are under the management of government or the citizens; (3) Collective, or the lands that are owned and managed by a certain groups of people; and finally (4) Mixed, or lands which are a combination of ownership and management; private institutions or corporations may not be allowed to acquire the said lands.⁹²

3. Populist Initiatives

Populism is a political phenomenon wherein politicians draw masses of new voters to a particular ideology, which is that of nationalism and cultural pride. Most politicians who are inclined to the populist orientation promised people a better life than they would normally draw in the working and middle classes. However, even wealthy and powerful citizens are also joining the populist's cause due to an underlying notion that populist ideology would serve well on the aforementioned interests and national destiny.⁹³

⁹¹ Embassy of the Bolivarian Republic of Venezuela. 2007. *Constitutional Reforms in Venezuela*. <http://www.embavenez-us.org> (accessed 3 December 2007).

⁹² Ibid.

⁹³ Ronald Sylvia and Constantine Danopoulos, "The Chavez Phenomenon: Political Change in Venezuela." *Third World Quarterly*, 2003: 63-76. (Sylvia and Danopoulos 2003)

In relation to this, it is significant to note that most political populist exhibit a charisma (i.e., special personal qualities and talents) that in one way or another empowers them to further the interest of the masses and uphold national dignity. The populist movement in Venezuela started in the 1920s and 1930s with Rómulo Betancourt when he led a student revolt that attempted to oust the dictatorial regime of Juan Vicente Gómez.⁹⁴

The populist movement of President Chávez started with his desire to deal with the extreme poverty that the masses were experiencing, initially without necessarily undertaking a radical distribution of wealth that would affect foreign investment and put the middle and the upper class in an unfavorable position.⁹⁵

In most countries that cater to a populist ideology, rural poverty and lack of development is rampant. Such an occurrence paved the way for the marginalized to transfer to urban areas to look for work. However, due to continued poverty, certain portions of the cities have turned into urban slums, with the government having very limited resources to cater to their needs.

In order to cater to these concerns, Chávez has made a number of social initiatives to alleviate the disposition of the poor. Food and first aid programs were given to the flood victim in Caracas in 2002. He also raised of the minimum wage of government employees and educators by 20 percent, and also found revenue sources other than oil taxes.⁹⁶

4. Oil Production

The economic growth of Venezuela could be highly associated with its oil production industry. The original "Oil Boom" in the 1970s and the early 1980' paved the

⁹⁴ Michael Conniff, *Populism in Latin America*. Tuscaloosa: University of Alabama Press, 1999.

⁹⁵ Ronald Sylvia and Constantine Danopoulos, "The Chavez Phenomenon: Political Change in Venezuela." *Third World Quarterly*, 2003: 63-76.

⁹⁶ Ronald Sylvia and Constantine Danopoulos, 2003. The Chávez Phenomenon: Political Change in Venezuela. *Third World Quarterly* 24 63-76.

way for the country to survive Latin America's sharp downturn in its economy.⁹⁷ Venezuela has been highly dependent on the oil revenues of the country in order to sustain its economy and shape political attitudes and various social values.⁹⁸

When Chávez assumed his office in 1999, the price of oil in the world market had dropped substantially. In order to attend to such concern, the administration assumed a proactive role to stabilize the price of oil in the world market. In order to achieve this, President Chávez forged a consensus with the Organization of Petroleum Exporting Countries (OPEC) while, at the same time, enhancing the role of the Ministry of Mines with the Petróleos de Venezuela (PDVSA) administration. Such an act by the government has paved the way to an immediate conflict with the bureaucracy of the oil conglomerates.⁹⁹

Due to the new constitution that was introduced in 1999 and the special laws enacted by the president in 2001, the country was placed on a collision course with the Petróleos de Venezuela (PDVSA), the state-owned oil company. In effect, the government has made a total overhaul of how the oil industry is managed, and made it as something that is "democratized." The management of the oil was removed from the hands of the experts and made into something that could be subjected to the criticisms of the people. As such, the issues with regard to the Venezuelan oil became a matter of public political discourse.¹⁰⁰ The control of the PDVSA has caused much conflict with the top managers of the PDVSA, due to the diversion of petroleum funds to a number of social programs.¹⁰¹

⁹⁷ Mark Weisbrot and Luis Sandoval, *The Venezuelan Economy in the Chavez Years*. Washington D.C.: Center for Economic Policy and Research, 2007.

⁹⁸ Miguel Tinker-Salas, 2005. Fueling Concern: The Role of Oil in Venezuela. *Harvard International Review* 26(4)50.

⁹⁹ Ibid.

¹⁰⁰ Ibid.

¹⁰¹ Ronald Sylvia and Constantine Danopoulos, "The Chavez Phenomenon: Political Change in Venezuela." *Third World Quarterly*, 2003: 63-76.

Considering the conflict, President Chávez took control of the manner in which taxes are collected. The Chávez government has instructed PDVSA to spend roughly \$4.4 billion out of its \$19.5 billion budget on social programs. Such an act by the government caused PSVSA to decline in terms of its productivity and direct most of its funds to the Fondo Nacional Del Desarrollo (Fonden), the government's national development fund.¹⁰² Most critics argue that such a move is something that could be viewed as inefficient use of revenues.

The Chávez government has also been underestimating the capital needs of the country by awarding oil service contracts on the sole basis of ideology and political motivations. This also led the way to decreased production of oil, despite the country having one of the biggest oil reserves. Based on its natural resources, the country has proved its capacity to be one of the major players in the international market. Yet, despite its 79.7 billion barrels of proven conventional oil reserves, 151 trillion cubic feet of natural gas, and roughly 270 billion barrels of reserves of extra-heavy oil in the Orinoco Belt, its production has been steadily decreasing. "When Chávez took office in the government, PDVSA was able to create 3.3 million bbl/d while private oil companies only contributed 200,000 bbl/d and, currently, PDVSA capacity is a dismal 1.8 million bbd/d."¹⁰³

The changing oil policies of the Chávez administration led the way for Venezuela's oil sector to fall behind in terms of its "technology, capital, and experience."¹⁰⁴ The revenues from Venezuela's oil have been steadily going down since 2005. Such a disposition for the economic sector is something that could translate on the macro level, as the aforementioned accounts for more than three-quarters of total export revenues of the country. Figure 3 reveals that revenues from oil exports have steadily declined as a result of the decrease in petroleum exports since 1998 when President Chávez took office.

¹⁰² Ben Deering, "Chavez's populism Threatens the Economic Engine of His Revolution." *SAIS Review*, 2007: 159-160.

¹⁰³ Ibid.

¹⁰⁴ Ibid.

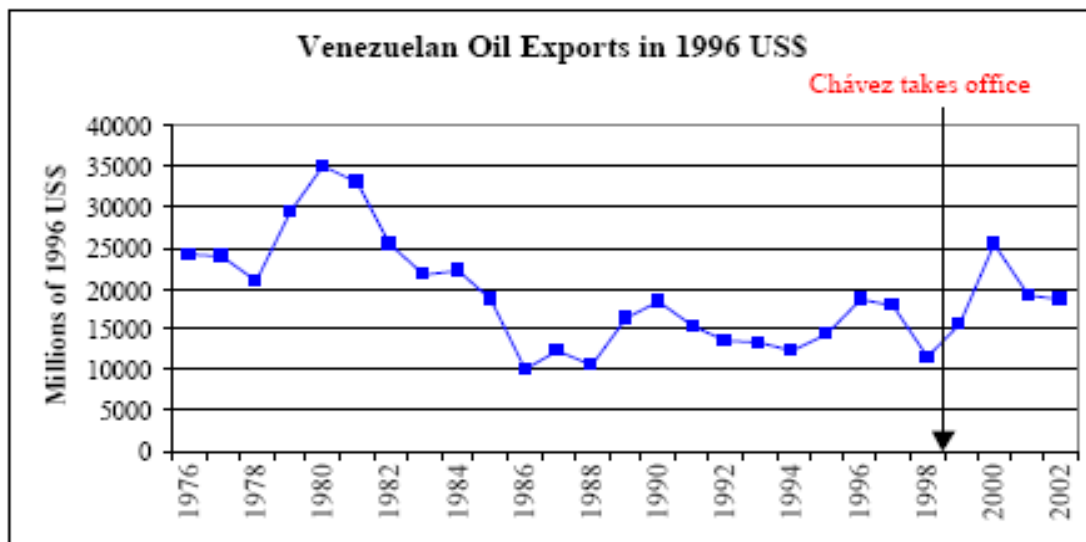


Figure 3. Venezuelan Oil Exports.

From: Banco Central de Venezuela 2003 as cited from Coupal 2003.¹⁰⁵

One of the major consumers of the Venezuelan oil is the United States, accounting for about 12 percent of the total crude oil import of the country. As such, 68 percent of the total oil productions are intended for the USA; because of this, in 2006 alone, the total exports of the country to the USA amounted to \$37.2 billion, having oil products take \$35.1 billion of the share or amounting to 94 percent of the total percentage of all exports. The increase of the price of oil in the global market has highly benefited the Chávez government, hence, leading the way to increase the country's revenues and government expenditures for anti-poverty and other social programs.¹⁰⁶

Despite of this relationship, however, a notable friction in terms of bilateral relations exists between Venezuela and the United States. There were times when President Chávez threatened that he will stop selling oil to the United States. In addition,

¹⁰⁵ Yasmine Coupal, 2003. *Macroeconomic Populism in Venezuela*. Stanford University.

¹⁰⁶ Mark P Sullivan and Olhero Nelson. *Venezuela: Political Conditions and U.S. Policy*. CRS Report for Congress, Congressional Research Service, 2007.

the president also threatened that he would destroy the oil fields if the U.S. were to attack. President Chávez also stated that the supply of oil would be cut if America tried to remove him from office. Such statements on the part of the government have caused numerous speculations about the reliability of Venezuela as a major supplier of oil. On the other hand, attempts by the Venezuelan government to tap the Chinese market have been viewed as an act that aims to replace the U.S. market.¹⁰⁷

5. Government Spending

More than just poor strategic use of PDVSA funds, a number of criticisms have also arisen due to the government's stand on how the citizens should make use of their electricity. According to Deering, the state's "consumer-oriented energy subsidies" indeed serve the citizens well, since it keeps the prices low; albeit, such an act fosters a frame of mind that the over-consumption of electricity is a conventional act, thus making Venezuela one of the highest consumers of electricity in South America.¹⁰⁸

In addition, Venezuela has used its human capital ineffectively. When President Chávez took office, he expressed his inclination to overhaul the current state of affairs of the state. When he initially tried to reform the state oil company, he experienced a significant degree of resistance from many within the company. When the aforementioned individuals participated in the 2002–2003 strike, President Chávez fired most of them (i.e., 20,000 of the company's 45,000 employees).¹⁰⁹

Other than the inefficient use of its electrical power, the country has been steadily increasing its expenditures for the past eight years; however, contrary to the claims of inefficient government spending, the Chávez government has been using much of its revenues from the oil sector to fund health care, food and education. Since 1998, the Chávez government has been spending a lot on health care, subsidized food, and

¹⁰⁷ Mark P Sullivan and Olhero Nelson. *Venezuela: Political Conditions and U.S. Policy*. CRS Report for Congress, Congressional Research Service, 2007.

¹⁰⁸ Ben Deering, "Chavez's populism Threatens the Economic Engine of His Revolution." *SAIS Review*, 2007: 159-160.

¹⁰⁹ Ibid.

education; the state oil's company funded the said social projects amounting to \$13.3 billion in 2006. Table 1 shows the rate of increase of government spending in order to cater to the needs of the poor.

Table 1. Venezuela Central Government Social Spending.

Venezuela: Central Government Social Spending (1998-2006)^a

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total Public Spending	23.7	24.5	29.6	31.6	29.4	31.0	28.4	28.5	31.0
Total Social Spending	8.2	9.4	11.0	12.1	11.2	12.1	11.8	11.6	13.6
Education	3.4	4.1	4.5	4.8	4.8	4.6	4.8	4.1	5.1
Health	1.4	1.5	1.4	1.5	1.7	1.5	1.6	1.6	1.8
Housing	1.0	0.8	1.7	1.0	0.8	1.1	0.6	1.3	1.6
Social Security	1.4	2.0	2.2	3.4	2.8	3.4	3.1	3.0	3.6
Social Development and Participation	0.8	0.9	0.8	0.9	0.8	1.1	1.2	0.9	1.0
Culture and Social Communication	0.2	0.1	0.2	0.2	0.1	0.3	0.3	0.3	0.3
Science and Technology	0.1	0.1	0.2	0.3	0.1	0.1	0.3	0.3	0.2
Social Spending (% of Public Spending)	34.7	38.5	37.3	38.4	38.2	39.0	41.4	40.6	44.0

Source: Sistema de Indicadores Sociales de Venezuela (SISOV) and Banco Central de Venezuela (BCV)

Notes:

/a Does not include social spending by PDVSA, the state oil company, which in 2006 contributed \$13.3 billion (or 7.3 percent of GDP) to social projects

From: Weisbrot and Sandoval (2007)¹¹⁰

One of the major social projects of the Chávez government involved improvements in health care, wherein there has been an increase of more than 18,000 primary health care physicians since 1998. Nine years ago, there were only 1,628 physicians for a total of 23.4 million patients; however, at present, there are already 19,571 physicians for a population of 27 million. The number of emergency rooms has also grown, from 417 in 1998 to 721 at present. Rehabilitation centers have surged from 74 to 445 and the primary care centers have increased from 1,628 to 8,628 at present. People have also been receiving specialty care, such as eye operations, since 2004 (399,662) and antiretroviral treatment for HIV patients (18,538 in 2006 compared to 335 in 1999).

The people's access to food was also significantly improved by the Chávez administration. Last year, 15,726 stores all over Venezuela offered goods at subsidized prices that would allow a consumer to save 39 percent, as compared to 2005, which

¹¹⁰ Mark Weisbrot and Luis Sandoval, *The Venezuelan Economy in the Chavez Years*. Washington D.C.: Center for Economic Policy and Research, 2007.

allowed consumers to save only 27 percent. Additionally, there are also various social programs that are made for the marginalized such as soup kitchens and food distribution.¹¹¹

The status of education systems has also improved significantly. The number of students in Bolivarian Schools, or those that cater to primary education, rose to 1,098,489 for the 2005-2006 school years, in comparison with the 271,593 for the 1999-2000 school years. In addition to this, over one million adults participated in the government's literacy program.¹¹²

Due to the government policies, the poverty rate in Venezuela has significantly decreased from 55.1 percent in 2003 to 30.4 percent in 2006. As such, the Chávez government social programs have led to a decrease in the poverty rate to 31 percent. Additionally, the unemployment rate has also dropped from 18.4 percent in June 2003 to 8.3 percent in June 2007, which is the lowest within the past decade. Significant increases in terms of jobs availability within the private sector are evident. There has been an increase of 1.9 million jobs within the private corporations and 478 thousand jobs for the public sector since President Chávez took office.¹¹³ However, no matter how grand these social developments for Venezuela have been, critics have been very wary of how the government has been increasing its expenditures for the past few years. The Venezuelan economic boom could be directly correlated to the success of its oil sector; however, such is already in the process of collapse. Venezuela's increase in spending is evident in Table 1, although a very conservative budget in terms of its oil production is expected to slow the economy from its very rapid pace. A hypothetical scenario, for instance, would be a drop in oil prices that would cause the country to go beyond its targeted expenditure for the year, hence affecting its reforms, social policies and other plans.¹¹⁴ For example, as of early November 2008, the price of oil had fallen by

¹¹¹ Mark Weisbrot and Luis Sandoval, *The Venezuelan Economy in the Chavez Years*. Washington D.C.: Center for Economic Policy and Research, 2007.

¹¹² Ibid.

¹¹³ Ibid.

¹¹⁴ Ibid.

50 percent from its all-time high in July that same year. Now Chávez is tightening the belts of bureaucrats. Chávez told officials, “they can look forward to fewer expensive SUVs, top-of-the-line mobile telephones and whiskey-fueled parties next year.”¹¹⁵ Finance Minister Ali Rodríguez said, “Venezuela's 2009 budget will have significant restrictions compared to this year's US\$63.9 billion plan, as President Hugo Chávez's government keeps a close watch on slumping international oil prices.”¹¹⁶

6. Inflation Rates

One major criticism on the economic trend in Venezuela is its rapidly growing economy due to the oil boom. The rising inflation of the country is hypothesized to soon spin out of control. Since Venezuela has been spending at an increasing rate, it is highly possible that the rising inflation of the country will bloom into a hyperinflation that would cause the aforementioned to a "sharp contraction in order to avoid or reduce dangerous levels of inflation."¹¹⁷

Figure 4 shows that the country's inflation has been declining from May 1998 to January 2002, dropping from 40 percent to 12 percent. Inflation increased sharply due to the government instability from February 2002 to February 2003, which includes the military coup and the oil strike. After the strikes, the inflation then went down again and stabilized for more than three years. In 2006, there was another increase in inflation that resulted in increased inflation from 10.4 percent to 19.4 percent in June of this year.¹¹⁸

The rising inflation in Venezuela has been primarily due to the shortages of supplies, including food, and other related shortages that are brought by its rapid economic development. However, some scholars argue that the increasing inflation in Venezuela is something that should not be viewed as very disturbing. The Venezuelan government has a substantial amount of reserves in offshore accounts to offset the social

¹¹⁵ Christopher Toothaker, *Venezuela Bureacrats Told to Trim High Living*. Oct 5, 2008. <http://news.yahoo.com> (accessed Oct 5, 2008).

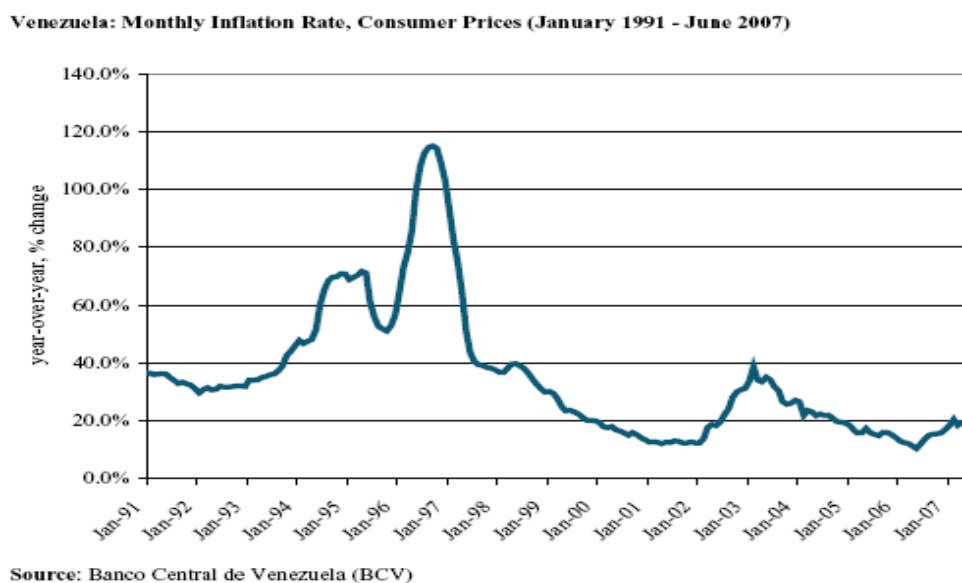
¹¹⁶ Ibid.

¹¹⁷ Mark Weisbrot and Luis Sandoval, *The Venezuelan Economy in the Chavez Years*. Washington D.C.: Center for Economic Policy and Research, 2007.

¹¹⁸ Ibid.

spending effects on inflation. Also, the inflation rate in Venezuela could not be compared to that of the United States or Europe, since the inflation rate during the Chávez government is significantly lower compared to that of 1996. Relative to past eras, the inflation rate is low and had been stabilizing at 19.4 percent as of March 2007. The government has been working to control the inflation, as evident on the reduction of the value added tax.¹¹⁹

Figure 4. Monthly Inflation Rate, Consumer Prices (January 1991–June 2007).



From: Weisbrot and Sandoval (2007)¹²⁰

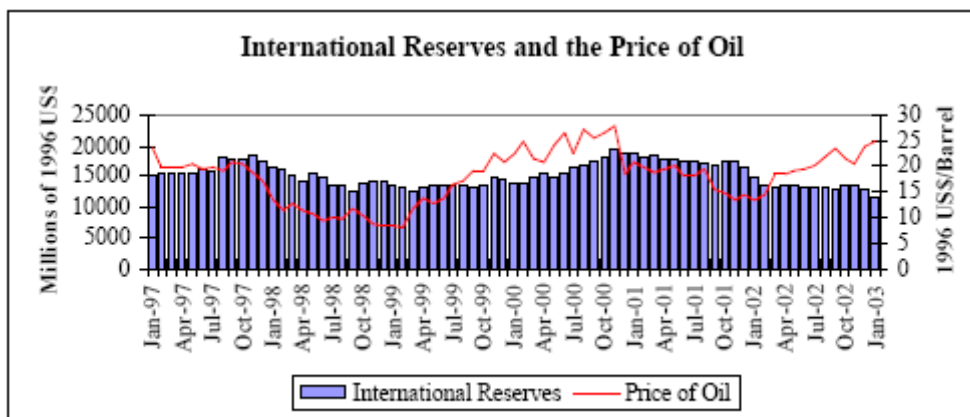
As mentioned above, Venezuela is using its large current account surplus to help sterilize the effects and to control the inflation. Sterilization is an act wherein the government takes "excess domestic currency out of circulation by issuing bonds." Also, country's the account surplus can also be used to diffuse inflation through imports. The excess domestic currency could be converted into dollars and be spent on imports. This,

¹¹⁹ Mark Weisbrot and Luis Sandoval, *The Venezuelan Economy in the Chavez Years*. Washington D.C.: Center for Economic Policy and Research, 2007.

¹²⁰ Ronald Sylvia and Constantine Danopoulos, "The Chavez Phenomenon: Political Change in Venezuela." *Third World Quarterly*, 2003: 63-76.

however, is a delicate balancing act because the reduced supply of bolivars increases their value and makes imports artificially cheap and exports expensive, and it puts enormous pressure on non-oil exports. This pressure will force non-oil exporters out of business and further the reliance on oil. In Figure 5, it can be seen that international reserves for Venezuela increases directly as the price of oil increases. This leaves Venezuela vulnerable to oil as its single export and its volatile prices.

Figure 5. International Reserves of Venezuela and Oil Prices.



From: Coupal 2003.¹²¹

7. Tax Policies

Various changes in tax policies were implemented during the Chávez administration. Foremost is the collection of non-oil taxes on businesses. The non-oil tax revenue increased to 12 percent of GDP in 2006, in comparison to 10 percent of GDP in 1999.¹²²

The government has also created tax policies aimed at large landholders, including landholders who own more than 5,000 hectares of land, affecting an estimated

¹²¹ Yasmine Coupal, 2003. *Macroeconomic Populism in Venezuela*. Stanford University.

¹²² Mark Weisbrot and Luis Sandoval, *The Venezuelan Economy in the Chavez Years*. Washington D.C.: Center for Economic Policy and Research, 2007.

300 owners all over the country. Critics argue that such an initiative aims primarily to have the owners sell off their land or have it confiscated for overdue taxes. Furthermore, it is expected that these lands, once transferred to the government, would be used for subsistence farming for the marginalized. This Chávez government tax policy is unusual, compared to the tax incentives given in the United States and Europe for overproduction.¹²³

8. Central Bank Reforms

The Central Bank of Venezuela is one of the major institutions that play a vital role for the advancement of Venezuela. The institution sets various monetary policies and interest rates. In order for the country to actualize its developmental goals, the Chávez government is looking to revise Article 318 to limit the Central Bank's autonomy by combining it with the Ministry of Finance and the Ministry of Planning and Development. Under this plan, the bank would be required to work on certain policies, together, with the goal of economic growth and development.¹²⁴

Central Bank reforms would limit the bank's autonomy and, at the same time, put the reserves of the country in the hands of both the executive branch and the bank. In such a manner, the proposed changes inculcates within the system the checks-and-balances approach of most democratic institutions.¹²⁵ The Embassy of the Bolivarian Republic of Venezuela perceives that such a change of the Central Bank would produce investments, develop infrastructures, finance social programs, and advance endogenous and humanistic development.¹²⁶ Central Bank reforms would create a totally new institution as the aforementioned are often viewed as offices that set high interest rates and various policies that overvalued the currency and led to a difficult process of borrowing and investing. In the long run, such processes for the Central Bank would

¹²³ Ronald Sylvia and Constantine Danopoulos, "The Chavez Phenomenon: Political Change in Venezuela." *Third World Quarterly*, 2003: 63-76.

¹²⁴ Embassy of the Bolivarian Republic of Venezuela. 2007. *Constitutional Reforms in Venezuela*. <http://www.embavenez-us.org> (accessed 3 December 2007).

¹²⁵ Ibid.

¹²⁶ Ibid.

further limit Venezuela's economic growth and, paradoxically, would make the country's imports artificially inexpensive and exports more costly.¹²⁷

9. Civil Military Relations

One very vital change that Chávez introduced in the Venezuelan political system is the role of the military. President Chávez has broadened the aforementioned's power by assuring that the country's sovereignty and independence is always present. The Reserves in the military are called the "Popular Bolivarian Militia" and are those who constitute the fifth official component of the armed forces. In addition, with this, the new reforms introduced by President Chávez allow him to declare any Venezuelan territory to be a special military zone for strategic defense purposes.¹²⁸

Venezuela has a rich history and benefited from a long period of consolidated democracy and civilian control over the armed forces from 1959 – 1974. From 1974 through 1998, civilian presidents reduced the amount of attention directed toward the armed forces and they began losing control over the military. Lack of civilian control over the military was highlighted by the 1992 coup d'état attempt orchestrated by then Lt. Col. Hugo Chávez. Despite his failure to take control over the government through other than democratic means, he later went on to win the presidency via elections in 1998. Since his election, Venezuela's military has become an active participant in the country's social development and delivery of public services.¹²⁹

As president, Chávez has been a major change agent in Venezuela and the military has been at his side often tasked with implementing changes within the government. Shortly after his election, Chávez dramatically altered the checks and balances of civilian control over the military. "Upon coming to power in 1998, Chávez led a sweeping effort to dismantle and replace the democratic institutions that had been

¹²⁷ Embassy of the Bolivarian Republic of Venezuela. 2007. *Constitutional Reforms in Venezuela*. <http://www.embavenez-us.org> (accessed 3 December 2007).

¹²⁸ Mark P Sullivan and Olhero Nelson. *Venezuela: Political Conditions and U.S. Policy*. CRS Report for Congress, Congressional Research Service, 2007.

¹²⁹ Hernan Castillo, "Political and Economic Insecurity: Civil Military Relations in Venezuela." *cipe.org*. 2007. www.cipe.org (accessed August 28, 2008).

established in 1958, often relying upon the armed forces to implement and support his agenda for change.”¹³⁰ Additionally, Chávez deliberately dismantled civilian controls of the military and greatly expanded the roles of military officers in the new government.¹³¹ Upon taking office, Chávez propelled the military into the political lime light. “He relied upon active and retired military officers to perform civilian political and administrative functions and intervened directly in officer promotions and assignments as well as redirected military roles and missions from national defense to internal security and development.”¹³² These roles and missions were solidified in the new 1999 constitution. The new constitution granted special powers to the military and expanded its jurisdictional boundaries. Under the new constitution, the armed forces play a significant role in the state, with little legislative oversight over the military's budget, and procurement practices.¹³³ With little budgetary oversight, the revolutionary members of the armed forces who hold many of the political positions within the government now have billions of petro dollars at their disposal for increased defense spending.

10. Economic Policies and Economic Stability

The reforms initiated by President Chávez from the time that he took his seat as President up to the present and the direction he is taking the country is viewed by most scholars as something that is very disturbing. Most critics claim that Chávez is planning to create an authoritarian government and dominate its neighboring countries. Some also speculated that he has already replaced the multiparty democracy with a political system that only centers on the actualization of his ideals, more of a cult of his ego. His

¹³⁰ Harold A. Trinkunas, *Crafting Civilian Control of the Military in Venezuela. A Comparative Perspective*. Chapel Hill: University of North Carolina Press, 2005. 1.

¹³¹ Ibid., 213

¹³² Ibid., 210.

¹³³ Hernan Castillo, "Political and Economic Insecurity: Civil Military Relations in Venezuela." *cipe.org*. 2007. www.cipe.org (accessed August 28, 2008).

inclination towards Fidel Castro and Cuba is also a significant factor that must be considered in assessing his true motives.¹³⁴

The proposed constitutional changes of President Chávez has been widely criticized by the opposition and as such are viewed as avenues for the president to further extend his term to eventually make Venezuela adopt the Cuban style of communism. The opposition leader and former presidential opponent, Manuel Rosales said that such an act by the President is a "constitutional coup"; hence, he campaigned for the rejection of the constitutional changes.

However, there are still a number of scholars arguing that the Bolivarianism movement of Chávez is something that would promote Free Trade. President Chávez is viewed as a leader who desires in creating its own trading alliances that would present a unified front and an alternative force in the world economy.¹³⁵ Albeit, despite the opening of the of the Venezuelan economy to neo-liberal policies, the surge of government spending has paved the way for the government to have difficulty in terms of managing its foreign currency reserves due to debts payments, social policy programs and preservation and development for the oil sector.¹³⁶

B. DEFENSE SPENDING

Venezuela's defense spending has increased by 62 percent between 2002 and 2007 shown in figure 1.¹³⁷ In 2007, military expenditures totaled over 2.0 billion dollars (US).¹³⁸ The 2008 actual expenditures are expected to be even higher due in part to the increase in oil prices from 2007 to 2008. Oil prices have quadrupled from 2002 through the peak in July 2008. According to the Stockholm International Peace Research Institute

¹³⁴ Mark P Sullivan and Olhero Nelson. *Venezuela: Political Conditions and U.S. Policy*. CRS Report for Congress, Congressional Research Service, 2007.

¹³⁵ Ronald Sylvia and Constantine Danopoulos, "The Chavez Phenomenon: Political Change in Venezuela." *Third World Quarterly*, 2003: 63-76.

¹³⁶ Ibid.

¹³⁷ Oxford Analytica. *Latin America: Arms Purchases Rise Along With Growth*. Oxresearch Feb 04, Oxford: Oxform Analytica, 2008. (Oxford Analytica 2008, 5)

¹³⁸ Ibid.

(SIPRI), 1.2 percent of the gross domestic product was spent on defense. This is among the highest levels of defense burden in South America.¹³⁹

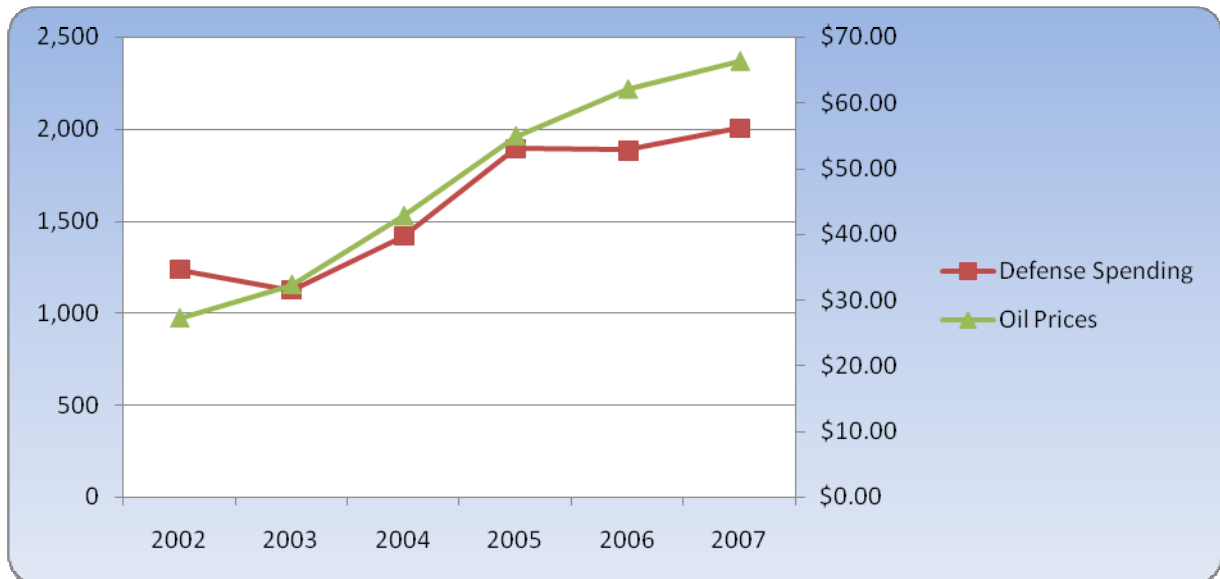


Figure 6. SIPRI Defense Spending Data for Venezuela (2005 US\$) and Oil Prices (2007 US\$).¹⁴⁰

Figure 5 shows defense spending rising along with the increase in oil prices. In 2008, its estimated oil will contribute 75 billion dollars to government coffers, up from 43.5 billion in 2007.¹⁴¹ As long as oil prices remain high, the additional spending on defense will have little impact on the overall economy. Venezuela certainly has the funds to support increased defense spending; the next question is why?

¹³⁹ Stockholm International Peace Research Institute. *The SIPRI Military Expenditure Database* 2008.

¹⁴⁰ Defense spending data from Stockholm International Peace Research Institute. *The SIPRI Military Expenditure Database*. 2008. Oil price data from Inflationdata.Com. *Historical Crude Oil Prices Table*. 2008.

¹⁴¹ The Economist. "A Funny Way to Beat Inflation." *The Economist*, June 19, 2008.

C. REASONS FOR THE INCREASED VENEZUELAN DEFENSE SPENDING?

The empirical data on defense burden shows an obvious upward trend in defense spending. Analysis of defense spending in Venezuela requires the inclusion of the three theories provided with the major constitutions changes discussed above. As with Chile the first relies on the existence of an arms race in South America and Venezuela's purchases are keeping in step with other military powers in the region such as Chile and Brazil. Another theory links the additional spending to the explosive increase in oil prices due to the current commodities boom. A third theory points to the need for military modernization after years of being denied access to high tech equipment; such modernization is said to be necessary for the military to respond to the threats facing the country.

1. Arms Race

Venezuela has not been involved in a major war since the War for Independence almost two hundred years ago. However, Venezuela has been involved in a number of border disputes with Colombia over natural gas and other resources. At times relations have been tumultuous. Most recently, Chávez sent troops to Colombian border after the Colombian military crossed into Ecuadorian territory attacking a FARC camp and killing several high-level FARC leaders. The Venezuelan president has also criticized the Colombian government for its close ties with the United States. Although Venezuelan defense spending does not seem to be related to its tenuous relations with Colombia, Venezuela does have a right to be concerned. As its closest neighbor, Colombia outspends Venezuela 2 to 1 on defense, spending 4 percent of GDP or 5.3 billion dollars in 2007.¹⁴² Most of Colombia's defense spending however is directly aimed at curbing the drug trade and strengthening internal security rather than external missions or threats.

Other big spenders in the region include Brazil and Chile. However, the relations between many of the countries in the region are peaceful. Chávez only ever claims to be

¹⁴² Stockholm International Peace Research Institute. *The SIPRI Military Expenditure Database*. 2008.

seriously concerned about the United States and that he wants his defense apparatus capable of deterring an American attack. Little is said by Chávez or other Venezuelan officials that they are worried about the level of arms entering the region. Other factors seem to play a larger role in Venezuela's arms build-up.

2. Commodities Boom

Since 2003, the world price of oil has set all time records and continues to maintain high price levels amid strong demand from developing nations such as Chile and Venezuela. Oil is Venezuela's number one export and generated over 75 billion dollars in revenues in 2007.¹⁴³ Oil revenues are by far Venezuela's most important single contributor to the economy. Over thirty-one percent of GDP comes in the form of oil revenues.¹⁴⁴ Oil prices have increased dramatically between 2003 and the present. Shown in Figure 6, oil has nearly quadrupled in price. From below thirty dollars per barrel in 2003, it has topped 140 dollars per barrel in mid 2008.¹⁴⁵

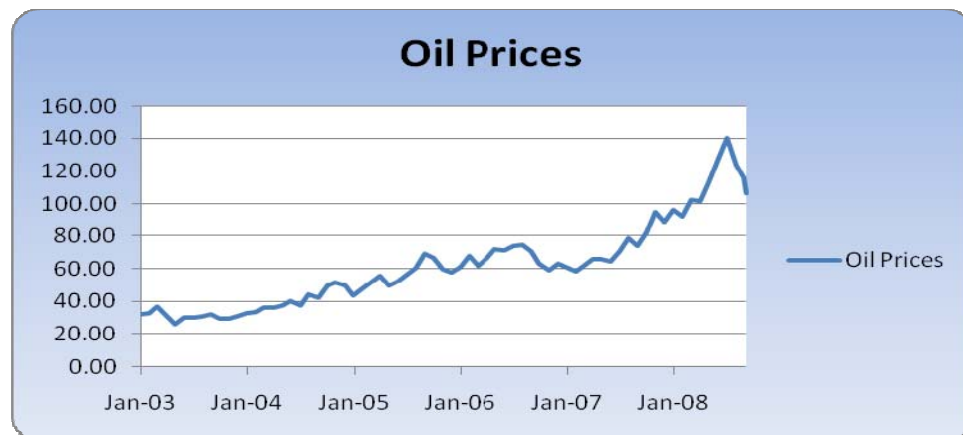


Figure 7. Crude Oil Prices.¹⁴⁶

¹⁴³ The Economist. "A Funny Way to Beat Inflation." *The Economist*, June 19, 2008.

¹⁴⁴ Calculated using data from the CIA Fact Book.

¹⁴⁵ Energy Information Administration. "International Petroleum (Oil) Prices and Crude Oil Import Costs ." *Official Energy Statistics from the U.S. Government*. Sep 2008.

¹⁴⁶ James L.Williams, "Oil Price History and Analysis." *WTRG Economics*. May 2008. <http://www.wtrg.com/prices.htm> (accessed Sep 5, 2008).

Like in Chile, state wealth and economic growth positively correlate with increased defense burden.¹⁴⁷ In other words, the rising tide of oil wealth is floating all boats in Venezuela including defense. “With greater resources per capita a state can meet the basic social welfare needs of the population and still have a larger proportion of income left over for defense.”¹⁴⁸ Additionally, with good economic growth, “As was true with the effect of wealth, it appears here that states will try to buy more security when they can afford it.”¹⁴⁹ Not only can Venezuela afford to increase spending on defense, but also the military has the support from President Hugo Chávez to continue spending.

3. Modernization

With the extra funds from high priced oil, Venezuelan is taking the opportunity revitalize the military. In fact, the Venezuelan military claims the oil funds are necessary to replace and modernize old outdated equipment. Venezuela plans call for a force structure revitalization program worth more than 30 billion dollars through 2012.¹⁵⁰ The navy alone is planning to spend about one billion dollars on fleet and equipment upgrades. Venezuela’s military modernization program has fallen behind over the past thirty years.

Venezuela’s military operates with old outdated equipment. Without the capability and technology to build its own military hardware, Venezuela looks to more developed countries for advanced military hardware. However because Venezuela was prohibited from purchasing advanced weapons from the United States and many of its allies its equipment slowly became obsolete. With the exception of the sale of F-16 fighter aircraft in the early 1980s by the Reagan administration, it was forced to acquire a second hand collection of military hardware since the Carter era Presidential Decision Directive 13 that banned sales of U.S. attack jets and other high-tech items to countries

¹⁴⁷ Benjamin E. Goldsmith, "Bearing the Defense Burden, 1886-1989. Why Spend More." *Journal of Conflict Resolution*, 2003: 551-573. (Goldsmith 2003)

¹⁴⁸ Ibid., 562.

¹⁴⁹ Ibid.

¹⁵⁰ Phillips Business Information. "Analysis: Venezuela To Become Top Latin American Arms Buyer." *Defense Daily International*, Nov 18, 2005: 1.

with poor human rights records. In 1997, President Clinton repealed the directive but Venezuela remains on the state department's list of countries of concern on terrorism, which prohibits major arms sales to the country.¹⁵¹

The Venezuelan armed forces are making significant progress in its modernization goals despite the high tech weapons ban. Each of the armed services have either purchased or plan to purchase new fighter jets, tankers, combat helicopters, search and rescue planes, early warning systems, war ships both surface and submarines and associated weapons systems, maritime helicopters, tanks, multiple rocket systems, armored personnel carriers, and a fleet of new trucks including heavy equipment transporters.¹⁵² Other equipment purchases or upgrades could come as necessary.

D. CONCLUSION

The changes that were brought forth by the Chávez government have caused various concerns for the international community. The reforms of the Venezuelan constitution are highly populist in nature and are seen by many to threaten democracy in Venezuela. Combined with the excessive government spending the country is heading down a dangerous road. Venezuela's oil production appears to be not exactly in proportionate to the amount social expenses of the government. The government had only spent a couple of hundred million dollars on oil research and development in 2006 while spending billions on social spending. This spending also threatens the negative effects of high inflation rates.

New economic and social policies could pave the way for a serious decline in the oil sector and eventually would cause economic problems throughout the country. However, with the increase in oil prices President Chávez has been able to fund all of his social programs as well as substantially increase the levels of defense spending.

¹⁵¹ MSNBC News Services. *U.S. Bans Weapons Sales To Venezuela*. May 15, 2006. www.msnbc.msn.com/id/12801930/ (accessed Sep 8, 2008).

¹⁵² Simon Romero, "Venezuela Spending on Arms Soars to World's Top Ranks." *New York Times*, Feb 25, 2007: 1.3.

From new tanks to planes, rifles and helicopters the Venezuelan military has dramatically increased its defense spending since 2003. The more than doubling of the defense budget from 2003 through 2008 Venezuela leads South America in increased defense spending and is among the leading defense spenders overall. However, the motivation for the increased spending does not appear to be driven by competition among countries within the region. The theory that Venezuela is engaged in an arms race is proving to be unlikely. Rather the Venezuelan military feels it is in desperate need of new and updated military hardware to counter an external threat, the United States.

The combined need for new equipment and high price of oil appear to be the key drivers of Venezuela's increased defense spending. Venezuela has been subject to a United States driven arms embargo since the Carter era. With the exception of its dilapidating F-16 fleet purchased in the early 1980s, Venezuela has been unable to purchase any new military equipment until only recently. With the rapid rise in crude oil prices Venezuela has the funds to look to other world powers for new highly advanced military hardware.

Russia has filled the void, has forged a close relationship with the Chávez administration and, as a result, will provide Venezuela with billions of dollars worth of new equipment and training. Both countries are working toward combined naval exercises in the very near future and plan to continue to build on their relationship. This concerns the United States; however, how will the overall effect of the Venezuela's military actions impact countries in South America?

THIS PAGE INTENTIONALLY LEFT BLANK

IV. AVOIDING REGIONAL CONFLICT

Since the beginning of the commodities boom, Chile and Venezuela have been on the leading edge of increased defense spending and modernization in South America and other countries in the region are keeping a close eye on their progress. In general, defense spending around the world is on the decline. In South America, however, this is not the case. Nearly every country in the region has experienced an increase in defense spending. While Chile and Venezuela lead in increased defense spending from 2003 - 2008, the other leaders in defense spending are Brazil, Colombia and Argentina. Collectively the region spent over thirty billion dollars on defense in 2007.¹⁵³ The consequences of the arms build-up in Chile and Venezuela could be a regional arms race explaining the increase in defense spending throughout. Have Chile and Venezuela spurred an arms race in the region and are the countries in the region being pressured into keeping pace? Countries in the region have reacted to Chile and Venezuela's increased military might. However, the reactions are as varied as the countries themselves.

Brazil by far spends more absolute dollars on defense than any other country in the region but due to its large overall budget its defense spending as a percentage of GDP is on par with other countries in the region, making Brazil the most powerful nation in the region., Brazil is a large and diverse country with officials on both sides of the arms race issue. Recently, Jose Sarney, a leading Brazilian senator expressed concern over Venezuela's increased defense spending said, "Venezuela is buying arms that are not a threat to the United States but which unbalance forces within the continent."¹⁵⁴ On the other side of the issue however, Brazil is not new to the defense game and as the clear heavy weight in the region has also benefited from high commodity prices and has increased its defense spending by 12.2 percent from 2003 – 2006.¹⁵⁵ However, the Brazilian Defense Minister says flat out that there is not an arms race in South America.

¹⁵³ Stockholm International Peace Research Institute. *The SIPRI Military Expenditure Database* 2008.

¹⁵⁴ Ibid.

¹⁵⁵ Oxford Analytica. *Latin America: Arms Purchases Rise Along With Growth*. Oxresearch Feb 04, Oxford: Oxform Analytica, 2008.

“There is no arms race in South America,” he said after meeting with Venezuelan President Hugo Chávez.¹⁵⁶ “It is important that countries have weapons. The projection of power by South America depends on its dissuasive powers of defense.”¹⁵⁷

Brazil has proposed a South American Defense Council that would be a response to the “need to create a common South American defense and security organ”; in a region that lacks an effective cooperation mechanism.¹⁵⁸

Other countries have proposed similar collective defense organizations such as the South Atlantic Treaty Organization (SATO) and Organization of Latin American States implying willful cooperation between countries and not a competitive arms race. While many South American countries are increasing their defense spending, none of the increases seems to be directly related to Chile or Venezuela’s expenditures. On the contrary, all of Chile and Venezuela’s historical enemies have or are in the beginnings of peaceful cooperation and relations. Many of the countries in South America including Brazil, Chile, Argentina, Ecuador, Colombia, Peru and others are attempting to build collective defense organizations that would require some level of integration of armed forces across the continent.

A. PREDICTIONS FROM GAME THEORY LITERATURE FOR REGIONAL CONFLICT IN SOUTH AMERICA

In the region, both Chile and Venezuela have both emerged as key players in the region. They have both expanded their economic international roles. Chile and Venezuela have experienced high rates of economic growth, which has had a significant impact upon their influence in the region. The other countries in the region cannot dismiss these rising stars and therefore must develop international policies and practices designed to foster cooperation and enable an international relationship that will be mutually beneficial. Robert Axelrod’s *The Evolution of Cooperation* serves to provide

¹⁵⁶ Frank J Daniel, “S. American defense spending not arms race: Brazil.” *Reuters*, April 14, 2008.

¹⁵⁷ Ibid.

¹⁵⁸ Augusto Varas, *Brazil in South America: from indifference to hegemony*. Madrid: Fundación para las Relaciones Internacionales y el Diálogo Exterior, 2008.

characteristics of the types of potential policy strategies using Cooperation Theory and the prisoner's dilemma in which the countries in South America can develop policy decisions that will achieve cooperation with these two countries.¹⁵⁹ The focus of this analysis will be on Chilean and Venezuelan international policies in particular their defense spending policies.

Axelrod's findings have been the basis of a wide range of work in behavioral research and game theory. "Much of current behavioral research stems from Robert Axelrod's computer simulations of behavioral strategies in prisoner's dilemma games."¹⁶⁰ His theories have been tested by a number of experts and applied to various topics including international negotiation and arms control. The results of Axelrod's work showed that one strategy was consistently successful over other strategies. TIT for TAT the dominate strategy, promotes cooperation between players or countries. The basis for the strategy is to cooperate at first and then to reciprocate your opponents' behavior from the previous interaction. "Reciprocity research since Axelrod's simulations has been much more narrow, concentrating on tests of Axelrod's explanations for why tit-for-tat is such an effective strategy."¹⁶¹ TIT for TAT has been found to so effective as to be the basis for international negotiations. Parks and Komorita suggest using TIT for TAT qualities when negotiating, "Negotiators should immediately reciprocate cooperative actions; be very careful to clearly convey all information; and carefully evaluate the opponent's actions."¹⁶² The wealth of literature shows TIT for TAT to be a robust strategy; however, it is not perfect all situations. Daniel Druckman's work, *The Social Psychology of Arms Control and Reciprocation* found that among adversaries TIT for TAT may not be the best strategy.¹⁶³ TIT for TAT's strict rules do not account for situations such as mistrust between players. Druckman states, "In a climate of mistrust

¹⁵⁹ Robert Axelrod, *The Evolution of Cooperation*. New York: Basic Books, 2006.

¹⁶⁰ Craig D Parks and Samuel S Komorita. "Reciprocity Research and Its Implications for the Negotiation Process." *International Negotiation*, 1998. 151.

¹⁶¹ Ibid., 156.

¹⁶² Ibid., 165.

¹⁶³ Daniel Druckman, "The Social Psychology of Arms Control and Reciprocation." *Political Psychology*, 1990: 576.

recipitation is likely to be misinterpreted.”¹⁶⁴ Therefore TIT for TAT may not always be the best strategy especially when dealing with long time foes. Even in Axelrod’s work TIT for TAT did not win in every situation. However despite some short comings, TIT for TAT can be highly useful in promoting cooperation. Therefore this paper will focus on Axelrod’s findings and will apply TIT for TAT to make defense policy recommendations for Chile and Venezuela.

1. Theory Overview

Axelrod’s *The Evolution of Cooperation* asks the question, “Under what conditions will cooperation emerge in a world of egoists without central authority?”¹⁶⁵ The answer to this question has an important impact on policymaking decisions. Assuming that Chile and Venezuela are egoists operating without a central authority, Axelrod’s findings are useful in determining policy in regards to both Chile and Venezuela that will lead to mutual cooperation and in turn mutual benefit.

In order to determine under what conditions cooperation will emerge Axelrod develops his Cooperation Theory by using the prisoner’s dilemma. In the case of the prisoner’s dilemma, there are two players and each must make a choice that affects the other without the other knowing which choice the other will make. Each player can choose one of only two options; they can either cooperate or defect. Both players have more to gain if they both cooperate than if they both defect. However if one cooperates and the other defects it is a zero sum result (the game overall is a non-zero sum game) and the defector benefits by receiving all of the gain and the cooperator gets nothing. By assigning points to each potential outcome, the payoffs of the game are much easier to understand. If both players cooperate, they each earn three points. If both defect, they each earn one point. If one player defects the other cooperates then they get five points and zero points respectively. The four potential outcomes are 5, 3, 1 and 0 points.

¹⁶⁴ Daniel Druckman, "The Social Psychology of Arms Control and Reciprocation." *Political Psychology*, 1990: 576.

¹⁶⁵ Robert Axelrod, *The Evolution of Cooperation*. New York: Basic Books, 2006. 3.

2. Rules of the Game

Axelrod's theory is based on several rounds of an iterated computer based competition using a wide range of strategies submitted from players of various backgrounds from all over the world. The iterated prisoner's dilemma began with sixteen original players in the first round and grew to over 60 players in the second round. Each competed against the other in a round robin tournament where each player was paired with each other player and the goal of the game was to accumulate as many points as possible. In other words, you only need more points than the other strategies at the end of the tournament. This is not a zero sum game with a clear winner and loser but a method in which to determine which strategy was most the successful. Axelrod defines success in a number of ways, which will be discussed later.

The players of the game each had the same set of rules. They could develop a strategy as simple or as complex as they felt necessary. There was not a limit on the number of identical strategies and each strategy would be paired with its own twin and a random strategy that randomly cooperated and defected with equal probability.¹⁶⁶ The payoff matrix was as described above where the point's outcomes could be 5, 3, 1, or 0 depending upon the combination of choices and in the first round of the tournament each game consisted of only 200 moves. Each player was also provided the results of preliminary tournaments including the winning and losing strategies. At the end of the first round there seemed to be a dominate strategy. In addition to performing well and winning the first round, the strategy of TIT FOR TAT also performed well in the two preliminary tournaments with a win and a second place. TIT FOR TAT had accumulated the most points in two of the three games. TIT FOR TAT is a strategy that is considered a nice strategy. It will never be the first to defect. It simply will cooperate and then follow its opponents last move. For example TIT FOR TAT will always cooperate as long as its opponent continues to cooperate and will always defect when the opponent defects. If the

¹⁶⁶ Robert Axelrod, *The Evolution of Cooperation*. New York: Basic Books, 2006. 30.

opponent switches from cooperation to defection and then back again, TIT FOR TAT will simply follow the last move of its opponent. This strategy proved successful in the second round as well.¹⁶⁷

The second round the tournament included four times as many players. In addition to more players and strategies, the second round of the tournament implemented a simple but significant change to the rules of the game. The number of rounds was not fixed and would end after a random number of moves. In the first round, it was discovered that it did not pay to cooperate in the final move. Knowing that the individual match was going to end after the 200th move and without the benefit of future cooperation there was no incentive to cooperate and players would defect in the later moves (198,199, 200, etc). By removing the fixed amount of moves and randomizing them, the end game effects discovered in the first round were removed. This proved to be significant when players felt they had a significant chance of continuing their interaction with the other player. TIT FOR TAT won this round and subsequent variants of the game.¹⁶⁸

3. Defining Success

Success presented itself in a variety ways in the tournament and the outcomes will be used when recommending specific policy decisions in regards to Chile and Venezuela. Accumulating the most points against an individual opponent for each interaction turned out not to be necessary to win the tournament. For example, TIT FOR TAT did not win a single individual game. By the nature of the TIT FOR TAT strategy, it can at best tie an individual strategy. However, in the long run, with many different opponents, TIT FOR TAT proved to accumulate the most points with the highest average amount of points per game. The TIT FOR TAT strategy was successful in several more ways that are important.

TIT FOR TAT success can also be measured in terms of being robust, stable and initially viable. By changing the distribution and the types of strategies in the game, Axelrod tested the robustness of TIT FOR TAT. As a result, TIT FOR TAT accumulated

¹⁶⁷ Robert Axelrod, *The Evolution of Cooperation*. New York: Basic Books, 2006. 42.

¹⁶⁸ Ibid., 53.

the most points in five of six different variants of the game, proving that TIT FOR TAT is robust. This is of particular importance to know that the strategy is viable under a wide range of players and circumstances such as in the international system. TIT FOR TAT was also stable when the shadow of the future looms larger than the benefits of the short term, meaning that once it is fully established it is resistant to invasion by other strategies.¹⁶⁹ In other words, in the international system if all of the players are where using the TIT FOR TAT strategy and cooperating it would not pay to defect and thus everyone would maintain the TIT FOR TAT strategy. Even in a situation where most of the players are using the ALL D (always defect. Another stable strategy) strategy a small cluster of TIT FOR TAT players can invade and overcome the ALL D players, which is an example of initially viability. Initial viability is the ability to get a foothold in an environment that is initially non-cooperative.¹⁷⁰ As long as there are enough interactions with one another then TIT FOR TAT can flourish and take a foothold and eventually driving ALL D to extinction. The reason is because the other players will all eventually switch to this strategy because they will see that it is accumulating more points and realize that TIT FOR TAT is a superior strategy.

a. TIT FOR TAT's Qualities

It is difficult to argue TIT FOR TAT's overwhelming success. The reasons why TIT FOR TAT is successful and the redeeming characteristics of the strategy can be carried over into the international system. TIT FOR TAT can be best described as being nice, provokable, forgiving and clear.¹⁷¹ TIT FOR TAT's combination of being nice, provokable, forgiving and clear is the basis for its success. By being nice, TIT FOR TAT keeps itself from getting into unnecessary trouble when the opponent is also nice. By being provokable and retaliating when the opponent defects, TIT FOR TAT discourages further defection. When the opponent tries to make amends by cooperating again, TIT

¹⁶⁹ Robert Axelrod, *The Evolution of Cooperation*. New York: Basic Books, 2006. 96.

¹⁷⁰ Ibid., 95.

¹⁷¹ Ibid., 176.

FOR TAT is quick to forgive and begin cooperating. This strategy is simple and the opponent is quick to learn and can see what is coming making the strategy clear to the other players.

TIT FOR TAT has the basic qualities that can be further developed into suggestions for how a country can do well when dealing with another country in a prisoner's dilemma situation. To begin, a country must be able to effectively choose the right strategy. Axelrod has four suggestions: "Don't be envious; don't be the first to defect; reciprocate both cooperation and defection; don't be too clever."¹⁷² Do not be envious. Remember that in the end, you want to accumulate the most points, or in the case of the international system, a country wants an agreement that will support its policy goals. This means that each country can mutually benefit and that other country can actually benefit more through dual cooperation on a single move. To be envious and try to rectify the imbalance, the only choice is to defect, which can spiral out of control with multiple defecting moves or conflict, and each country ends up worse off than before. In this way, it does not pay to be concerned with the short run.

Be nice and do not be the first to defect. A common factor of all the strategies that performed well in the tournament was the fact that they were not the first to defect; they were nice strategies. This is particularly important when there is a high likelihood that each country will have future interactions. In today's globally connected world the Chile cannot avoid interactions with Venezuela. By being nice, a country can avoid unnecessary conflict. In addition, nice strategies can to invade and it only takes a small number of nice strategies to eventually dominate. In the end the mean, defecting strategies are ecologically weeded out. Of course, it does not pay to be overly nice.

Reciprocate both cooperation and defection. We have seen the benefits of cooperation however there is also a meaningful benefit in defecting in response to your opponent's defection. Being provokable, as mentioned earlier, discourages defection. However, it is also the characteristic that makes TIT FOR TAT resistant to invasion by mean strategies and is ideal in a wide number of situations. By practicing reciprocity, TIT

¹⁷² Robert Axelrod, *The Evolution of Cooperation*. New York: Basic Books, 2006. 110.

FOR TAT was able to find the right level of forgiveness in providing a one for one response that worked in a wide range of settings.¹⁷³

Do not be too clever. TIT FOR TAT was one of the simplest strategies submitted in both rounds of the tournament. Several of the strategies submitted were very complicated and difficult to understand. Some were so complicated it was difficult distinguishing them from the RANDOM strategy. Unlike in football, where one team is out to defeat the other team with secret plays that the other team cannot predict, in a non-zero sum game it pays to have clarity. When the other player can predict your next move and believes that there is a good chance of future cooperation they are more likely to cooperate. When they are unsure of their opponent's strategy, they have no incentive to cooperate and the best option is to defect.¹⁷⁴

4. Impact of Chile and Venezuela's Expanded Roles in the Region

Both countries are major players in South America and have increasingly expanded roles internationally. The two countries South America world largest increase in defense spending, both have more than doubled defense spending since 2003. Their economies continue to grow and as a result have increased their regional influence. Both countries have seen tremendous economic growth over the past several years. In 2007, Chile experienced a 5.1 percent real growth rate and Venezuela experienced an 8.4 percent real growth rate.¹⁷⁵

Chile and Venezuela are two very different countries but both have a significant impact to the region. As both economies have grown, their militaries have benefited from increased funds resulting in massive amounts of new equipment purchases. Chile alone spent nearly 4.8 billion dollars on its military in 2007 behind only Colombia and Brazil. While Venezuela's defense budget does not match those of Chile, they are significant to the Chile and the region. In addition both countries' have a tremendous wealth of natural

¹⁷³ Robert Axelrod, *The Evolution of Cooperation*. New York: Basic Books, 2006. 120.

¹⁷⁴ Ibid., 121.

¹⁷⁵ Central Intelligence Agency. *CIA World Fact Book*. October 23, 2008. <https://www.cia.gov/library/publications/the-world-factbook/geos/in.html#Econ> (accessed October 24, 2008).

resources and their recent rise of the world's commodities prices over the past decade, having a direct impact on defense spending policies.

5. Policy Strategy

The arms build-up in these two countries has not gone unnoticed by others in the region. Two separate examples are among the most polarized relationships in the region: the relationship between Chile and Peru and the relationship between Venezuela and Colombia.

In Chile and Peru, the relations between both countries have been tenuous ever since the War of the Pacific when Chile annexed a large portion of Peruvian land and shut off access to the sea to Bolivia. Although Chile's national budget is twice the size of Peru's, Chile spends nearly four times as much as Peru on defense. Similarly, Colombia outspends Venezuela two to one on defense and Colombia's close relationship with the United States further exacerbates the sometime tenuous relations. This analysis focus on potential policy applications on the part of each of the countries that will support increased cooperation that then can be extrapolated throughout the region.

Each of countries has the ability to build up their militaries as well as strategically move their forces around within their borders. This means that they can build up forces along the border between the two countries similar to the situation between North and South Korea. Assuming that cooperation and mutual benefit would result in no build up of forces this sets up a typical prisoner's dilemma. Taken individually and factoring out organizations such as the Organization of American States (OAS) and the United Nations (UN) Chile and Peru, and Colombia and Venezuela are in an iterated prisoner's dilemma. Assuming that their relations will continue indefinitely into the future the door is open for a TIT FOR TAT style defense policy to flourish. Each country can either cooperate or defect. By cooperating, they will not add additional military manpower and equipment to the border. When additional forces are added it is a defection.

Chile and Venezuela should use the TIT FOR TAT policy for its interactions with Peru and Colombia respectively. Here is where Axelrod's suggestions can be applied to Chilean defense policies with Peru and Venezuelan defense policies with Colombia.

Chilean and Venezuelan policy makers should not be envious of Peru and Colombia militarily. Both countries are currently benefiting from peaceful relations. The goal for the Chile and Venezuela must be to mutually benefit from peaceful relations. An example would be if politicians were concerned about (envious) of the location of forces within Peru or Colombia they may react to that situation by defecting and adding their forces near the border. Peru and Colombia could then respond with a defection and the situation could spiral out of control resulting in a worse off situation. Chile and Venezuela should also not be the first to defect. Although they may be under pressure from their constituents and residents in the border area to defect they must make every attempt to be nice in terms of not defecting and pushing for additional forces knowing that future peace is in the balance it will pay off to be nice and cooperate. However as it was stated earlier it is important to not be overly nice. Policy makers should reciprocate both cooperation and defection. If, for example, Peru defects and increases its troops along the border then policy makers in Chile should quickly respond with a defection perhaps sending additional forces but less than the amount sent by Peru to try and limit the chances of Peru responding with another defection and cooperating on the next move. Chile's defection should be slightly less negative than Peru's original defection — as if to say that Chile is willing to be nice and will cooperate, but will not be a pushover. The same would also apply to Venezuela and Colombia

TIT FOR TAT is also a simple and predictable strategy. Peru and Colombia will easily be able to determine future Chilean and Venezuelan border defense strategies. Politicians should not try to be too clever. A complex strategy is not clear and will not send the message that Chile and Venezuela are willing to cooperate. When Peru and Colombia are unsure if Chile and Venezuela will cooperate, their best alternative will be to defect risking the echoing defect effect where each country continues to defect. TIT FOR TAT is an easy strategy that makes it clear to everyone that the Chile is willing to cooperate.

6. Ideal, Yet Not Perfect

TIT FOR TAT is an ideal strategy for Chilean and Venezuelan policy makers when developing defense policy with Peru and Colombia respectively. However, it is not a perfect policy and has a possible weakness in the international system. In the real world, time is an important factor. Time was eliminated as a factor in Axelrod's computer tournament. However, in the international system, results and rewards for cooperating or defecting often come slow and are not always readily visible. Politicians often want or feel they need immediate results to take back to their constituents. The benefits of cooperating sometimes take years to present themselves. Likewise, the negative effects of defecting can and often take an equally long time to filter their way through the system. As a result, politicians may not follow the TIT FOR TAT strategy. In the end, this strategy has been proven robust, stable and initially viable.

B. CONCLUSION

Overall South America is a peaceful region and is arguably one of the most peaceful regions in the world in terms conventional inter-state warfare. The level of peace in the region could be because of TIT for TAT like policies. The latest example is when Colombian forces crossed the border into Ecuador and attacked and killed a high-level FARC leader as well as a number of lower level FARC members. Many leaders in the region felt that Colombia violated Ecuador's sovereignty including Venezuela Colombia's neighbor. Both countries denounced the Colombian actions or defection and then sent forces to the border. Colombia's defection was met with another defection but not one that would promote another defection on the part of Colombia. Ecuadorian and Venezuelan forces went to their respective borders with Colombia; however, they never crossed into Colombia or attacked any Colombian troops. The defection was enough to let Colombia that a defection will not be tolerated and that each country would rather cooperate and have a peaceful relationship. Several weeks after the defections, officials from all three countries met to discuss the issue and forces were then pulled back from the borders. The TIT for TAT response was a viable strategy in this case. Perhaps more

politicians and policy makers should read *The Evolution of Cooperation*. In the end, “if we understand the process better, we can use our foresight to speed up the evolution of cooperation.”¹⁷⁶

¹⁷⁶ Robert Axelrod, *The Evolution of Cooperation*. New York: Basic Books, 2006. 191.

THIS PAGE INTENTIONALLY LEFT BLANK

V. CONCLUSION

Chile and Venezuela have clearly increased their defense burden over the past five years. Three possible theories were put forth to explain the reason behind the increased expenditures: existing arms race, explosive increase in oil prices and the need for military modernization. Chile and Venezuela clearly fall into the later two categories. The commodities boom and need for equipment can explain their defense spending growth.

The Chilean military is structured to receive the benefit high commodity prices directly. As mentioned previously, Chile's copper law provides for a direct correlation between increased copper prices and increased defense spending. Additionally, Chile displayed a need for new and updated equipment. Going years without the ability to adequately modernize its equipment, Chile has had a pent up demand for military equipment required to fulfill its national security strategy. The benefit of high copper prices, relaxed U.S. policies and the need for equipment were the right mix of ingredients to spark off a massive military modernization effort and increased defense spending.

The Venezuelan military benefits from high commodity prices as well as from the belief in the threat of a U.S. invasion. As discussed, Venezuela's president continues to make the argument that the United States is a threat and the Venezuelan military needs to modernize to defend against that threat. Additionally, the Venezuelan military suffers from old equipment and is in need for new and updated hardware. As with Chile, Venezuela spent decades in the dark, unable to adequately modernize its equipment. The benefit of high oil prices, and the willingness of countries like Russia to provide the high-tech weapons, provided the right combination of factors that led to a nearly 50 percent increase in defense spending.

The chance that Chile and Venezuela has promoted an arms race in South America is unlikely. Based on the evidence put forth above, most South American countries are attempting to work closer and improve relations. Almost the entire continent has increased defense spending in South America, including Argentina, Brazil,

Chile, Colombia, Ecuador, Paraguay Peru, and all have the need for modernization and the ability to pay for it with high priced commodity revenues. From precious and industrial metals to agricultural products and oil and gas, each of the countries with increased defense spending has benefited from high commodity prices. The commodity boom is the fuel behind the increased defense spending within the region.

The region has a bright future ahead. By cooperating and working together the peaceful region with its wealth natural resources is sure to be a major player in the international scene. Policy recommendations include using the TIT for TAT strategy from Axelrod to promote the cooperation needed to catapult the region into the world's spotlight. Each of the countries in the region should use a TAT for TAT style strategy in their regional relations. The strategy is simple, easy to predict, allows for an avenue for all countries to cooperate even after a defection. The countries in the region already appear to be using TIT for TAT style strategies in the region. As explained in chapter four, recent military actions between Ecuador, Colombia and Venezuela have proved that TIT for TAT is a viable strategy. In the end, South American countries are cooperating despite increasing levels of defense spending by Chile and Venezuela. With these sound regional policies, South America is sure to maintain its low levels of interstate war, peaceful relations and place itself as a important player in the international arena.

LIST OF REFERENCES

- Axelrod, Robert. *The Evolution of Cooperation*. New York: Basic Books, 2006.
- BBC News. *Venezuela 'to buy more weapons'*. Feb 5, 2006.
<http://news.bbc.co.uk/2/hi/americas/4682488.stm> (accessed June 12, 2008).
- Canache, Damarys, and Michael Kulisheck. *Reinventing Legitimacy: Democracy and Political change in Venezuela*. Westport: Greenwood Press, 1998.
- Cardamone, Thomas. "Arms Sales to Latin America." *Foreign Policy in Focus*, 1997: 1-3.
- Castillo, Hernan. *Political and Economic Insecurity: Civil Military Relations in Venezuela*. 2007. www.cipe.org (accessed January 16, 2008).
- Central Intelligence Agency. *CIA World Fact Book*. October 23, 2008.
<https://www.cia.gov/library/publications/the-world-factbook/geos/in.html#Econ>
(accessed October 24, 2008).
- Chilean Ministry of Defense. *Book of the National defense of Chile*. Chilean Ministry of Defense, 2002.
- Conniff, Michael. *Populism in Latin America*. Tuscaloosa: University of Alabama Press, 1999.
- Coupal, Yasmine. *Macroeconomic Populism in Venezuela*. Thesis, Stanford: Stanford University, 2003.
- Daniel, Frank Jack. "S. American defense spending not arms race: Brazil." *Reuters*, April 14, 2008: <http://www.reuters.com/article/worldNews/idUSN1441533220080415>.
- Deering, Ben. "Chavez's populism Threatens the Economic Engine of his Revolution." *SAIS Review*, 2007: 159-160.
- Dominguez, Jorge I. *Boundary Disputes in Latin America*. Institutional Report, Washington DC: United States Institute of Peace, 2003.
- Dorschner, Jim. "Chile Modernizes for Joint and International Operations." *Proceedings*, March 2005: 64-65.
- Downie, Andrew. "Is Latin America Heading for an Arms Race?" *Christian Science Monitor*. Jan 16, 2008. www.csmonitor.com (accessed May 15, 2008).
- Druckman, Daniel. "The Social Psychology of Arms Control and Reciprocation." *Political Psychology*, 1990: 553-581.

- Embassy of the Bolivarian Republic of Venezuela. *Constitutional Reforms in Venezuela*. 2007. www.embavenez-us.org (accessed December 3, 2007).
- Energy Information Administration. *International Petroleum (Oil) Prices and Crude Oil Import Costs*. Official Energy Statistics, Energy Information Administration, 2008.
- Franco, Patrice. "De Facto Demilitarization: Budget-driven Downsizing in Latin America." *Journal of InterAmerican Studies and World Affairs*, 1994: 37-57.
- Goldsmith, Benjamin E. "Bearing the Defense Burden, 1886-1989. Why Spend More." *Journal of Conflict Resolution*, 2003: 551-573.
- Grimmett, Richard F. *Conventional Arms Transfers to Developing Nations, 1998-2005*. CRS Report, Washington DC: Congressional Research Service-Library of Congress, 2006.
- Heiss, Claudia, and Patricio Navia. *Protected Democracy and Military Autonomy Trade Offs in Chile's Transition to Democracy*. Working Paper Number 9, Institute of Instruction in Social Sciences, University Diego Portales, 2006.
- Human Rights Watch. "Human Rights Overview. Chile." *HRW.org*. 2004. <http://hrw.org/english/docs/2006/01/18/chile12205.htm> (accessed June 19, 2008).
- Hunter, Wendy. *State and Soldier in Latin America. Redefining the Military's Role in Argentina, Brazil and Chile*. Washington DC: United States Institute of Peace, 1996.
- Long, Clara. *Venezuela Spends Week Preparing for U.S. Invasion*. June 11, 2006. www.npr.org (accessed July 10, 2008).
- Looney, Robert E., and Peter C. Frederiksen. "The Effect of Declining Military Influence on Defense Budgets in Latin America." *Armed Forces and Society*, 2000: 437-449.
- Loveman, Brian. "Protected Democracies and Military Guardianship: Political Transitions in Latin America, 1978-1993." *Journal of Inter-American Studies and World Affairs*, 1994: 123.
- MetalPrices.com. *Free web charts*. June 19, 2008. http://www.metalprices.com/pubcharts/Public/Copper_Price_Charts.asp (accessed June 19, 2008).
- Mora, Frank O., and Antonio L. Palá. "U.S. Arms Transfer Policy for Latin America. Lifting the Ban on Fighter Aircraft." *Air Power Journal*, 1999: 76-92.

- MSNBC News Services. *U.S. Bans Weapons Sales to Venezuela*. May 15, 2006.
www.msnbc.com (accessed July 10, 2008).
- Oxford Analytica. *Chile: F-16 Order Exposes Defense Spending Problems*. OxResearch February 11, Oxford: Oxford Analytica Ltd., 2002.
- Oxford Analytica. *Chile: Military Modernization*. Oxresearch Mar 11, Oxford : Oxford Analytica, 1998.
- Oxford Analytica. *Latin America: Arms Purchases Rise Along With Growth*. Oxresearch Feb 04, Oxford: Oxford Analytica, 2008.
- Parks, Craig D, and Samuel S Komorita. "Reciprocity Research and Its Implications for the Negotiation Process." *International Negotiation*, 1998: 151-169.
- Phillips Business Information Inc. Newsletters. "Analysts: Venezuela To Become Top Latin American Arms Buyer." *Defense Daily International*, 2005: Vol 6 No. 42.
- Rohter, Larry. "Chile Copper Windfall Forces Hard Choices on Spending." *New York Times*, January 7, 2007: 1.
- Romero, Simon. "Venezuela Spending on Arms Soars to World's Top Ranks." *New York Times*, Feb 25, 2007: 1-3.
- Sanchez, Alex. "Chile's Aggressive Military Arms Purchases are Ruffling the Region, Alarming in Particular Bolivia, Peru and Argentina." *COHA.org*. August 7, 2007.
www.coha.org (accessed May 15, 2008).
- Stockholm International Peace Research Institute. *The SIPRI Military Expenditure Database*. 2008. <http://www.sipri.org/contents/webmaster/databases> (accessed June 19, 2008).
- Sullivan, Mark P, and Nelson Olhero. *Venezuela: Political Conditions and U.S. Policy*. CRS Report for Congress, Congressional Research Service, 2007.
- Sylvia, Ronald, and Constantine Danopoulos. "The Chavez Phenomenon: Political Change in Venezuela." *Third World Quarterly*, 2003: 63-76.
- The Economist. *A funny Way to Beat Inflation*. June 19, 2008. www.economist.com (accessed July 20, 2008).
- Tinker-Salas, Miguel. "Fueling Concern: The Role of Oil in Venezuela." *Harvard International Review*, 2005: 50-54.
- Toothaker, Christopher. *Venezuela Bureacrats Told to Trim High Living*. October 5, 2008. <http://news.yahoo.com> (accessed October 5, 2008).

- Trinkunas, Harold. *Crafting Civilian Control of the Military*. Chapel Hill: University of North Carolina Press, 2005.
- U.S. Department of State. *Country Reports on Terrorism*. State Department, Washington DC: Office of the Coordinator for Counterterrorism, 2008.
- Varas, Augusto. *Brazil in South America: from indifference to hegemony*. Madrid: Fundación para las Relaciones Internacionales y el Diálogo Exterior, 2008.
- Waltz, Kenneth. "Globalization and American Power." *The National Interest*, 2000: 55-56.
- Weisbrot, Mark, and Luis Sandoval. *The Venezuelan Economy in the Chavez Years*. Washington D.C.: Center for Economic Policy and Research, 2007.
- Williams, James L. "Oil Price History and Analysis." *WTRG Economics*. 2007. <http://www.wtrg.com/prices.htm> (accessed September 13, 2007).
- Wohlforth, William C., et al. "Testing the Balance-of Power Theory in World History." *European Journal of International Relations*, 2007: 155-185.
- Zibechi, Raúl. "Chile and Venezuela: Myths and Realities of the Arms Race." *Worldpress.org*. August 5, 2007. www.worldpress.org (accessed May 15, 2008).

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Ft. Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California